Spring 5-2012

# Home-School Collaboration: Concurrent Home and School Reading Interventions Within a Response to Intervention System

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# WITHIN A RESPONSE TO INTERVENTION SYSTEM

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Abstract of a Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
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May 2012

ABSTRACT

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The current study investigated the effectiveness of reading interventions in the form of home-school collaboration on increasing oral reading fluency in elementary students exhibiting reading fluency deficits. Specifically, student participants were receiving Tier II reading interventions at their school. Additionally, parents were trained to implement an individualized intervention identified by brief experimental analysis with each student at home. Home-school notes were used to facilitate support and communication between the home and school. Results demonstrated that three of four students' oral reading fluency improved. Furthermore, parents rated the interventions as acceptable. Parent treatment integrity was found to be adequate.

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ACKNOWLEDGMENTS

I would like to thank my dissertation chair, Dr. Brad A Dufrene, and committee members, Dr. Sterret H. Mercer, Dr. D. Joe Olmi, and Dr. Daniel H. Tingstrom, for their advice and support for this project. I will always take with me what I have learned from conducting this project. I would especially like to thank Dr. Brad Dufrene for his inspiration, guidance, and insightful advice throughout the project. The endless time, effort, and patience he has put into this project will be forever appreciated.

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# CHAPTER I

## INTRODUCTION

The importance of reading has been reflected in federal education legislation. The No Child Left Behind Act (NCLB, 2001) promotes an increased focus on reading and calls for reading programs to be scientifically-based. Additionally, the goal of NCLB is for US students to reach the goal of reading at or above grade level by the end of the third grade (U.S. Department of Education, 2002).

Reading is one of the fundamental skills necessary for students to succeed in school. Francis, Shaywitz, Steubing, Shaywitz, and Fletcher (1996) demonstrated that students who fall behind early in reading have an increased likelihood of continuing to lag behind throughout their school years. Reading disability contributes to the majority of school dropouts, and poor reading skills are also associated with behavioral and emotional problems (Persampieri, Gortmaker, Daly, Sheridan, & McCurdy, 2006). Despite the vital role reading plays in a student's success in school, the National Center for Education Statistics (NCES, 2007) reported that only 33% of fourth grade students read proficiently at or above grade level.

Reading competence includes both oral reading fluency (how fast and accurate a student reads) and reading comprehension. The National Reading Panel (2000) reported that "Fluency is one of several critical factors necessary for reading comprehension" (p.11). Fuchs, Fuchs, Hosp and Jenkins (2001) suggested that oral reading fluency is an indicator of overall reading competence. Because of its prerequisite place in reading achievement, a substantial amount of studies have been devoted to addressing the issue of

reading fluency (e.g., Daly, Martens, Hamler, Dool, & Eckert, 1999; Eckert, Ardoin, Daly, & Martens, 2002).

Oral reading fluency interventions that have been empirically supported include listening passage preview (LPP), repeated reading (RR), error correction (EC), contingent reinforcement, and performance feedback. Studies (Daly et al., 1999; Eckert et al., 2002), though, have shown that students respond idiosyncratically to oral reading fluency interventions. Brief experimental analysis (BEA) has been found to be useful in identifying effective reading interventions for individuals with oral reading fluency deficits. A BEA includes brief tests of interventions to quickly identify an effective intervention or intervention package for an individual. BEA identified reading interventions have been effective in increasing students' oral reading fluency. However, the majority of these interventions have been implemented by experimenters or trained educators. Zhou (2009) investigated the effectiveness of BEA identified reading interventions when conducted by parents. Because inconsistent gains were observed in students' oral reading fluency and inspired by the tiered-model of Response to Intervention (RtI) approach, the current study intensified the interventions by using a home-school collaboration model in which the students received interventions concurrently from school personnel and their parent. The purpose of this study was to evaluate the effects of BEA identified reading interventions implemented by parents in addition to school-based interventions delivered by an intervention teacher. Additionally, this study evaluated if parents were able to implement reading interventions with integrity following training.

# CHAPTER II

# LITERATURE REVIEW

## Oral Reading Fluency

Fuchs et al. (2001) defined oral reading fluency (ORF) as "the oral translation of text with speed and accuracy" (p. 239). Oral reading fluency has long been recognized as a predictor of overall reading competence. From the perspective of attention allocation, Fuchs and colleagues analyzed why ORF is an indicator of reading competence. According to Fuchs et al., reading is a very complex task that needs the coordination of many hierarchic mental processes in a short period of time. Those processes compete for limited attention capacity. Fuchs et al. explained reading with two models: the automaticity model of reading and the interactive model of reading. The automaticity model is a bottom-up serial-stage model of reading. In this model, lower levels of reading processes such as reading fluency have to be completed before higher level processes of reading, such as comprehension, can even happen. If lower-level processes require too much attention to complete, there will be none or too little attention left for the performance of higher-level processes. Therefore, only when lower-level processes become automatic will enough attention remain for higher level processes to be possible.

The interactive model, in contrast, suggests that the activation of higher-level processes does not await the completion of all lower levels. In this model, the two levels of processes interact and interweave with each other during the activity of reading.

Contextual knowledge helps in word identification in two separate ways: the automatic-activation process and the conscious-attention mechanism. The automatic-activation process requires little attention capacity when words can be retrieved from the memory networks automatically. However, the conscious-attention mechanism uses more attention capacity to predict the upcoming words relying on the contexts. Because poor readers with fluency difficulties use the conscious-attention mechanism more often during reading, little attention capacity is left for integrative comprehension processes.

Despite the differences, both perspectives have one important assumption in common: higher level processes of text comprehension cannot happen until the low-level processes of reading fluency become automatic and free up cognitive resources. This assumption supports the theoretical argument that reading fluency should serve as an indicator of both word recognition skill and the reader's comprehension of text.

In addition to the theoretical hypothesis that oral reading fluency may function as an indicator of overall reading competence, Fuchs, Fuchs, and Maxwell (1988) provided empirical evidence for this hypothesis. They compared oral reading fluency to more direct measures of reading comprehension. Those direct measures included question answering, passage recall, and cloze procedures. Seventy middle and junior high school students with reading disabilities participated in the study. Each participant completed four measures of reading comprehension.

For question answering, participants read two 400-word passages, five minutes for each, and then answered 10 text-related questions. Numbers of correct responses were averaged across the two passages. For passage recall, the same 400-word passages were used. Participants read one passage for five minutes and had 10 minutes to retell the

passage. Total number of words retold, percentage of content words retold, and percentage of idea units retold were scored as recalls. For the cloze procedure, every 7$^{th}$ word was deleted from each 400-word passage. Participants filled in the blanks where the words were missing for one passage. Exact matches, synonymous matches and syntactic matches with deleted words were scored as correct replacements. Oral reading fluency was also assessed for all the participants. Students read two 400-word passages out loud for five minutes each, and omissions, repetitions, substitution, and mispronunciations were scored as errors. The average number of words read correctly per minute across the two passages was recorded as the measure of oral reading fluency.

Before the administration of the four reading measures, the Reading Comprehension subtest of the Stanford Achievement Test (Gardner, Rudman, Karlsen, & Merwin, 1982) was given to all the participants. Each of the four measures was correlated with the performance on the reading comprehension subtest on the Stanford Achievement Test. Results demonstrated that the correlation between oral reading fluency and the achievement test was significantly higher ($r = 0.91$) than the correlation between each of the three reading comprehension measures ($r = 0.82$ for question answering, $r = 0.70$ for recall, and $r = 0.72$ for cloze) and the achievement test. Based on this finding, Fuchs et al. (2001) argued that reading fluency was a better predictor of comprehension than measures of reading comprehension such as retelling, questioning and cloze. Fuchs and colleagues also found that oral reading fluency was a better indicator of overall reading competence than silent reading fluency.

## Empirically Supported Reading Interventions

Because of the critical role reading fluency plays in reading achievement, researchers have developed and investigated a variety of instructional strategies for increasing oral reading fluency in students with reading difficulties. Eckert et al. (2002) suggested that those strategies can be broadly divided into two categories: skill-based antecedent interventions and performance-based consequent interventions. Skill-based interventions refer to those antecedent procedures that involve modeling, prompting, and student practice. Frequently used skill-based interventions include RR, LPP, and word drill. Performance-based interventions refer to the manipulation of consequences following student reading. Performance-based interventions include error correction (EC), reinforcement contingent on improvement, also known as reward (Re), and performance feedback. The current literature review will discuss two skill-based interventions (LPP and RR) and two performance-based interventions (EC and rewards contingent on improved performance) that are pertinent to this study.

*RR*

RR is one effective antecedent intervention that has been widely used (Fuchs, et al., 2001). RR is "a reading program that consists of reading a short and meaningful passage several times until a satisfactory level of fluency is reached" (Samuels, 1979, p. 404). Therrien's meta-analysis of the RR literature (2004) suggested that, for a RR intervention, three to four readings of one passage may be sufficient to increase reading fluency and comprehension. RR is intended to provide the student with more opportunities to practice reading, and repetition is important in terms of skill acquisition and fluency.

RR has been implemented and has resulted in increased oral reading fluency and accuracy across populations such as students with learning disabilities (Sindelar, Monda, & O'Shea, 1990), students with mental retardation (Samuels, 1979), nondisabled students (Daly, Martens, Dool, & Eckert, 1999), elementary students (Dowhower, 1987), middle school students with reading deficits (Homan, Klesius, & Hite, 1993), and secondary students with reading deficits (Valleley, & Shriver, 2003). RR has also been found to be effective in increasing reading comprehension for slow but accurate elementary readers (Dowhower, 1987) and for middle school students with reading deficits (Homan et al., 1993). RR has been recognized by the National Reading Panel as effective for improving students reading accuracy, fluency, and comprehension (National Institutes of Child and Human Development [NICHD], 2000).

In addition to its effectiveness in increasing reading rate and comprehension, Valleley and Shriver (2003) discussed three more strengths that RR has as an intervention. The first strength is that RR is easy to implement. All the interventionist needs to do is to provide the student with a passage and ask the student to read the passage aloud several times while providing feedback to the student (e.g., interventionist corrects student errors). The second strength is that RR could reinforce student's reading behavior, because it is very likely that rereading a passage will bring about an immediate increase in reading speed. Last, RR assists with the development of basic fluency skills the student might be lacking.

*LPP*

LPP is another empirically-based intervention that is effective for increasing reading fluency. In LPP, the student first listens to an audiotape of a passage (Daly &

Martens, 1994), or to an interventionist reading the passage (Daly et al., 1999), while following along silently with their finger. The passage is read at a comfortable rate, Rose and Beattie (1986) suggested approximately 130 words per minute. The student is supposed to follow the passage with a finger to indicate that they are reading along with the interventionist. The student is then required to read the same passage aloud independently. The purpose of LPP is to model fluent reading and provide the student with an opportunity to practice reading the words they have previewed.

Researchers have found LPP to be an effective intervention to increase oral reading fluency. Daly and Martens (1994) employed a multi-element design to compare the effects of three interventions (subject passage preview, LPP, and taped words) on participants' oral reading performance. All four participants were diagnosed with learning disabilities in reading. Two of the participants read at the first grade level, while the remaining two read at the second grade level. In the subject passage preview condition, the participants first orally read a passage independently; the second reading of the same passage was assessed for reading fluency and accuracy. In the LPP condition, the participant listened to an audiotape of a passage while following along silently. The assessment was done in the same manner as in the subject passage preview condition. In the taped words condition, the participant read aloud along with an audiotape of the word list that was taken out of a passage in advance. Then the participant's reading performance on the corresponding passage was assessed. Results demonstrated that, of the three treatments, LPP led to the greatest gains in oral reading accuracy and fluency over baseline for all four participants.

Besides being implemented in isolation, LPP can also be implemented in conjunction with other reading interventions. Daly et al. (1999) conducted a brief experimental analysis to identify instructional components necessary to increase oral reading fluency for each of four participants. The three reading interventions included in the analysis were a reward for rapid reading, RR, and LPP. During the experiment, LPP was combined with RR when RR alone did not produce increases in reading fluency. Results suggested that RR combined with LPP was most effective for two of the four participants.

In a BEA conducted by Eckert et al. (2002), LPP combined with RR was implemented with five of the six participants as an antecedent intervention. The brief analysis examined the effectiveness of combining the antecedent intervention with consequences on the reading fluency of six elementary participants. The treatment conditions included LPP with RR, LPP with RR and contingent reinforcement, LPP with RR and performance feedback, and LPP with RR, performance feedback, and contingent reinforcement. Results demonstrated that the effectiveness of the antecedent intervention was enhanced for four of the six participants when combined with one or both consequences.

*EC*

The essential elements of an error correction procedure in oral reading fluency are the supply of the correct response for an error (a misread word or a word that was hesitated on for longer than three seconds) and the opportunity to practice the correct response several times in succession (Tam, Heward, & Heng, 2006). Specifically, during an EC procedure, the interventionist listens to the student read a passage while keeping

track of errors made by the student. After the entire passage is read, the interventionist points out each error that occurred during the reading, provides the correct pronunciation of the word, and instructs the student to reread the phrase containing the error three times (O'Shea, Munson, & O'Shea, 1984). A variation of error correction is instead of waiting until the student finishes the entire reading; errors are immediately corrected when they occur (Malloy, Gilbertson, & Maxfeild, 2007).

EC is often used in combination with other forms of reading interventions such as LPP and RR (Daly et al., 2002; Nelson, Alber, & Gordy, 2004). Nelson and colleges examined the effects of EC and EC in conjunction with RR on the reading fluency of four second grade students with special needs. A multiple baseline design across participants was employed in the study. During baseline, the student was asked to read a passage for five minutes. Errors were corrected immediately after their occurrence; however, the corrected words were not required to be repeated by the student. After the student read the passage for five minutes, they were instructed to re-read the passage from the beginning for one minute while words read correctly and errors made in this minute were recorded as the measurement of their oral reading fluency.

During the systematic EC condition, each time the student made a mistake, the interventionist corrected the word and instructed the student to repeat the correct word and then to reread the sentence. Additionally, after the five-minute reading period, the interventionist reviewed the misread words with the student. Following review, the student was required to reread the passage for one minute to be scored. During EC plus RR condition, the student read the passage for three minutes instead of five minutes, then the student reread the passage from the very beginning for three times, each time the

student read for one minute. The same EC procedure was followed for the three minutes and two of the three one-minute readings. The last one-minute reading was scored for data collection purposes. Lastly, EC plus RR with previously read materials was implemented. This condition was implemented in the same manner with the EC and RR condition except that the reading passages used in baseline were reused in this condition.

The results of the study demonstrated that EC alone did not significantly increase the number of words read correctly per minute as evidenced by a slight increase of the group mean from 50.33 to 53.68, although it noticeably reduced the number of errors made per minute by students (the group mean decreased from 5.53 to 2.53). When combined with RRs during the last two conditions, the group mean of the number of correct words per minute significantly increased from 50.33 to 70.00 and 72.15, respectively, furthermore, the group mean of the number of errors made per minute decreased from 5.53 to 2.89 and 1.89, respectively.

*Re*

Re is also known as contingent reinforcement. It is an intervention in which access to a reward is granted if the student meets a criterion set in advance. In the BEA conducted by Daly et al., Re alone did not produce meaningful gains in students' oral reading performance. However, when combined with an antecedent intervention (i.e., LPP and RR) in Eckert et al. (2002), the oral reading fluency of students with reading difficulties was enhanced.

Re may be used in conjunction with performance feedback. Performance feedback usually includes feedback on: (1) length of time the student needed to read the

passage; (2) number of words read correctly by the student; and (3) number of errors made by the student. Performance feedback can also involve goal setting and graphing (Eckert et al. 2002). In goal setting, reading goals are developed by the interventionist or both the interventionist and the student prior to the implementation of the intervention. In graphing, the interventionist or the student records the reading performance on the graph(s). When combined with an antecedent intervention or both an antecedent intervention and contingent reinforcement (Eckert et al., 2002), performance feedback has been found effective in increasing oral reading fluency in students with reading difficulties. Contingent reinforcement and performance feedback may be implemented in isolation or in combination.

In a study by Eckert and colleagues (2002), a BEA was used to evaluate the effectiveness of combining two consequences (i.e., contingent reinforcement or performance feedback individually, and then together) with an antecedent intervention (i.e. LPP with RR) on oral reading fluency for six elementary students. After baseline, the treatment conditions included LPP with RR and contingent reinforcement, LPP with RR and performance feedback, LPP with RR and performance feedback plus contingent reinforcement. The treatment conditions were presented randomly for four of the participants, and sequentially for the other two. Results of the study demonstrated that the combination of LPP with RR and either of the two consequences produced greater improvement in oral reading fluency than the sole use of the skill-based antecedent intervention. However, no further improvement was identified when both consequences were combined with the antecedent intervention.

Chafouleas, Marten, Dobson, Weinstein, and Gardner (2004) examined the additive effects of performance-based interventions to skill-based interventions on reading and error rates of three elementary students experiencing reading difficulties. The two performance-based interventions investigated were performance feedback and contingent reward, and the skill-based intervention was RR. The three treatment conditions created out of the above interventions were: RR alone, RR with performance feedback, and RR with both performance feedback and contingent reward. An alternating treatments design was used, and passages were randomly assigned to conditions. Results suggested that, for students with relatively high reading accuracy and low fluency levels, RR or practice alone might be the most effective intervention. However, for students exhibiting relatively low accuracy and low fluency rates, performance feedback and/or contingent reinforcement in conjunction with practice (i.e. RR) might be the most helpful way to improve reading performance. For all participants, oral reading fluency increased 1.3 to 2.4 times more words read correctly per minute on average relative to baseline during the antecedent intervention condition; and consistently higher reading rates were observed when the antecedent intervention was combined with one or both consequences. All intervention packages resulted in limited generalization (e.g. performance on untrained passages).

## Curriculum Based Measurement

Oral reading fluency may be measured using curriculum-based measurement (CBM) procedures. CBM includes standardized measures for reading, mathematics, writing, and spelling and was developed by Deno and colleagues in the early 1970s (Shinn, 1989). It was first produced to provide special education teachers with

standardized, simple, and accurate approaches to measure students' skills in basic academic areas (e.g., reading, spelling, mathematics computation, written expression). Today, CBM is widely used in both general and special education settings. Several features of CBM set it apart from other forms of curriculum based assessments (Hintze, Christ, & Methe, 2006). First, unlike other mastery or criterion-referenced measurements that usually focus on short-term mastery objectives, CBM focuses on broad, long-term objectives and is used as a general outcome measure. Second, because administration of CBM is time-efficient, and the measures are sensitive to small changes in student growth, CBM may be implemented repeatedly over time. Third, because of this long-term focus, CBM can be used to assess maintenance and generalization effects of a treatment. Fourth, CBM specifies the evaluation procedures involved from test stimuli generating, test administering and scoring, to data analysis and inference making. The whole standardized process makes it possible to compare scores within and across students over time (Hintze et al., 2006).

For oral reading fluency, CBM may include the following three steps: (1) selecting three reading probes for a certain grade level, (2) administering and scoring the reading probes; and (3) analyzing data and decision making.

The student should be informed prior to the administration that she or he is going to read and that she or he should do their best reading. Then the student is provided with the student's copy of the reading probe, as soon as the student reads the first word, the evaluator starts the stopwatch. While the student is reading, the evaluator records student errors. Errors include omitted words, mispronounced words, substitutions, insertions, and words the student pauses for three seconds. At the end of one minute, the evaluator places

a bracket around the final word read by the student. The total numbers of word read correctly and incorrectly in one minute is then calculated and recorded.

After all three probes are scored, the median correct and incorrect words read per minute will be used to compare with criteria for placement. The evaluator then decides if the student is reading at mastery, instructional, or frustrational level of a certain grade level, and moves up or down the grade level accordingly to administer the next set of three reading probes. The procedure continues until the grade level at which the student is reading at the instructional level is determined.

In addition to being used for instructional level establishment, CBM can also be used to monitor the progress of student's reading fluency over time (Hintze et al., 2006; Shapiro, 2004). For progress monitoring, reading probes are selected from long-term, goal-level reading material that the student is expected to be able to read fluently at the end of a certain academic year. Progress monitoring is usually conducted one or two times per week. For each session, the student reads only one passage for one minute. The administration and scoring of the reading probes are conducted in the same manner as in the establishment of instructional level. In reading fluency interventions, the progress monitoring data are compared to baseline data to determine how much the student has progressed in oral reading fluency.

A series of studies (for review, see Marston, 1989) has provided substantial evidence for the validity and reliability of CBM. In these studies, correlation coefficients between CBM oral reading and different generally accepted, published norm-referenced reading tests ranged from .63 to .90, with most coefficients being above .80. The predictive validity of curriculum-based reading measures on global reading proficiency

ranged from .57 to .86, with half the coefficients above .80. The CBM one-minute reading measure also appeared to be a valid predictor of students' success in their current curriculum with a reported correlation coefficient of .84. Test-retest reliability for CBM reading measures have ranged from .82 to .96, parallel form reliability ranged from .84 to .96, and interrater agreement coefficients were a reported .99.

A recently conducted meta-analysis by Reschly, Busch, Betts, Deno, and Long (2009) provided further psychometric support for CBM oral reading fluency. The study quantitatively evaluated the correlation between CBM oral reading measure and other standardized measures of reading achievement. Additionally, the analysis investigated potential moderating variables such as grade level and administration format. Results demonstrated a moderately high correlation (weighted average $r = .67$) between scores of CBM oral-reading probes and those of standardized tests of reading achievement. Moreover, no significant discrepancy was found in the magnitude of the correlation when grade level (grades 1-6) was examined as a variable. Furthermore, with a finding of a higher correlation coefficient between CBM reading fluency scores and scores from individually administered achievement tests than that between CBM reading fluency scores and scores of group-administered achievement tests, the result provided support for the individual use of CBM.

Fewster and Macmillan's study (2002) adds to the evidence of psychometric quality by longitudinally examining the validity of CBM for predicting students' school performance. At the beginning of the study, CBM reading fluency and written expression data were collected for 465 students in grades 6 and 7. The students were then divided into two groups. For the grade 6 group, CBM scores were compared to their English and

social studies (considered to be the most reading and writing intensive) scores for grades 8 and 9; and for grade 7 students, the CBM scores were compared to their grades in the same two courses for grades 8 through 10. Students' grades in English and Social studies for grades 8 through 10 were regarded as criterion measures.

Separate correlational analyses were run for the two sets (grades 6 and 7) of CBM scores. A significant positive correlation was indicated between grades 6 and 7 reading and written expression CBM scores and grade 8 through 10 school course grades. The coefficients between reading fluency and school course grades ranged from $r = 0.35$ to $r = 0.53$; the coefficients between written expression and course grades ranged from $r = 0.24$ to $r = 0.50$. Generally, oral reading fluency correlated more highly with course grades than written expression. Both oral reading fluency and written expression correlated more highly with English than with social studies, and those coefficients were statistically significant ($p < .005$). This study provided empirical evidence that CBM measures are valid in assessing students' overall academic performance.

## Brief Experimental Analysis

Reschly and Ysseldyke (2002) pointed out that making special educational placements and categorical diagnoses (e.g. learning disabilities, emotional disturbance), which school psychologists spend approximately two-thirds of their time doing, does not lead to effective intervention strategies. With awareness of this, the field of school psychology is now shifting from focusing on identifying disabilities to identifying effective interventions for students with academic problems.

Wilber and Cushman (2006) stated a variety of hypotheses that might explain students' academic difficulties. The five common hypotheses are that the student (1) lacks motivation; (2) has not experienced enough practice; (3) does not receive sufficient assistance; (4) has not had to use the skill in a manner that met specific requirements; and (5) there is a weak match between student's skill level and the difficulty of the instructional materials. The various reasons students experience academic difficulties may also explain individual's idiosyncratic responses to various interventions (Daly et al., 1999; Eckert et al., 2002).

Another factor that needs to be taken into consideration when it comes to selecting effective interventions for academic problems is the instructional hierarchy. The instructional hierarchy was first described by Haring, Lovitt, Eaton, and Hansen (1978). It is believed to correspond with a hierarchy of learning stages (acquisition, fluency, generalization, and adaptation) that a student goes through when learning a new skill. When a student begins to learn a skill, he or she enters the acquisition stage, where accurate performance is the goal of instruction and instructional strategies include modeling, prompting, student practice, and immediate feedback (e.g. praise for accurate responding, corrective feedback for inaccurate responding). After the student has acquired the skill, he or she enters the fluency stage where the learning process shifts from accuracy to fluency. Corresponding instructional strategies include drill and practice and shaping. The next stage is generalization in which the student is expected to perform the skill in novel ways or under different stimulus conditions. Instructional strategies for the generalization stage include teaching multiple exemplars, training under a variety of stimulus conditions, and sequential modification. The last stage in the learning hierarchy

is adaptation. In this stage, the student learns to modify the learned skill to solve new problems. In order to facilitate the adaptation of the skill, instruction focuses on providing novel situations for the student to practice modification of a learned skill in the solution of new problems.

The instructional hierarchy may provide a useful heuristic for intervention selection. Because oral reading fluency is defined as the "oral translation of text with accuracy and fluency" (Fuchs et al., 2001, p. 239), it actually includes both the acquisition and fluency stages. For students with both low accuracy and low fluency levels, the intervention should focus on modeling and error correction to improve the accuracy and get the student through the acquisition stage first. For students who read slowly, but make very few errors, the intervention strategy should focus more on fluency and provide more opportunities for repeated practice and reinforcement for fluency shaping.

As mentioned previously, student responses to intervention may be idiosyncratic, and educators are faced with the challenge of selecting interventions for an individual student who may respond variably to a range of evidence-based procedures. Fortunately, BEA has been demonstrated to be an effective procedure for identifying effective and efficient reading intervention(s) among a range of procedures for individual students (e.g. Daly et al., 1999; Daly et al., 2002; Eckert et al., 2000; Eckert et al., 2002; Dufrene & Warzak, 2006; Welsch, 2007).

BEA is a procedure in which "a variety of empirically based interventions are systematically tried to determine how the student responds to various interventions" (Wilber & Cushman, 2006, p. 80). A complete BEA procedure may include two phases:

brief analysis and extended analysis. During the brief analysis, the potential intervention and/or intervention package is selected and examined, and the treatment that produces the greatest gains in the student's reading is identified. Then, the identified treatment is implemented in the extended analysis for a longer term to verify the conclusion of the brief analysis.

Wilber and Cushman (2006) stated that there are four steps in a BEA procedure. The first step is to obtain a baseline level of performance in the targeted area. The second step is to select potential interventions based on the hypotheses of academic deficits in relation to the instructional hierarchy discussed above, and then arrange these interventions systematically (e.g. the least to most adult effort needed) for implementation. The third step in BEA is to briefly implement the intervention or intervention package and measure the student's response to each of the conditions. Each condition is usually implemented one to three times. The final step in BEA is to compare the effectiveness of experimental conditions to baseline and each other. The intervention or intervention package that produces the greatest improvements in student's responding will be selected for implementation in the extended analysis and over time if verified.

## BEA Research

Daly et al. (1999) conducted a BEA to evaluate the effects of reading interventions grouped hierarchically in order to make individualized treatment recommendations. Four elementary students who had been referred for reading problems participated in the study. Instructional passages and high content overlap (HCO) passages were used to implement intervention(s) and to assess students' generalized reading performance. The effects of treatment conditions on participants' reading were measured

by the number of words correct per minute (WCPM) on the instructional passage. Baseline data were obtained and then the treatment conditions were arranged in the following sequence: Re, RR, RR with sequential modification (RR/SM), LPP plus RR (LPP/RR), LPP plus RR plus sequential modification (LPP/RR/SM), LPP plus RR plus easier materials (LPP/RR/EM). The premise behind the arrangement was that if the previous treatment condition did not improve participants' responding noticeably, further components were added to the subsequent conditions to augment the treatment. Sequential modification refers to the application of reading interventions to the HCO passages. It occurred when there was a noticeable improvement in responding in the instructional passage under a certain condition but not in the HCO passage, then, that condition was applied to the HCO passage (e.g. RR/SM).

A brief multi-element design was employed to compare the effects of treatment conditions to one another and to baseline. In each condition, the treatment was implemented with the instructional passage, students' performance on the final reading of the instructional passage was assessed as the effects of the treatment, and then generalization effects were evaluated by assessing students' performance on the HCO passage. When a treatment condition produced visible improvements in performance relative to baseline and/or other treatment conditions, a brief withdrawal was administered to confirm the effects. The withdrawal was achieved by inserting a baseline condition after the last effective condition.

Results demonstrated that individuals responded differently to treatment conditions. The RR/SM was most effective for two of the participants, while the other two students successfully responded to LPP/RR/SM and LPP/RR/EM, respectively.

These results suggested that (1) individuals respond to interventions idiosyncratically, and (2) brief experimental analysis is helpful in identifying the most effective intervention or intervention package for individual students. Another result of the Daly et al. (1999) study was that generalization to novel passages was not guaranteed when a treatment produced gains in oral reading fluency for instructional passages.

Eckert et al. (2002) conducted a BEA to investigate the separate and combined effects of antecedents and consequences on students' oral reading fluency. Six elementary students with some degree of reading difficulties participated in the study. WCPM was calculated and served as the indicator of reading performance. The first minute of the reading of a novel passage in baseline sessions and the first minute of the last reading in each treatment condition were measured. The experimental conditions included: antecedent intervention (AI; including LPP and RR), antecedent intervention and contingent reinforcement (AI + CR), antecedent intervention and performance feedback (AI+PF), and antecedent intervention, performance feedback, and contingent reinforcement (AI + PF + CR).

During the antecedent intervention condition, the participants first listened to the experimenter read the passage aloud one time and then practiced reading the same passages aloud for three consecutive trials. For one of the six participants, the antecedent intervention included only RR due to previous evidence that combining the two antecedent-based interventions did not produce desirable gains in his performance. For performance feedback, reading goals were developed through the collaboration of the experimenter and an individual participant prior to the implementation of the antecedent intervention. Following each reading, the experimenter informed the participant of the

two measures of his or her reading performance: number of errors made and number of minutes used in reading. The student then recorded the data on two corresponding graphs. For Re, the participant was rewarded with a selected item if his or her last reading rate exceeded the initial passage reading rate by 5%. The item was selected by the participant prior to the last reading.

A multi-element design was utilized, and for four of the six participants, the conditions were randomly ordered, and each condition took place equally often in each order. Results suggested that the antecedent intervention condition increased all participants' reading fluency and the effectiveness was enhanced for four of six participants when either of the two consequences was added. However, when the two consequences were combined, no further performance improvements were observed in any of the four participants. The idiosyncratic responses were again demonstrated when the consequence that brought about the greatest gains varied across participants.

Dufrene and Warzak (2006) conducted brief experimental analyses to identify effective reading fluency interventions for English and Spanish reading. An Hispanic student in the 3rd grade participated in the investigation. He was reported to be experiencing difficulties in English and Spanish reading. The dependent measures were WCPM and errors per minute (EPM). A brief multi-element design with a mini-withdrawal was used to analyze the effects of oral reading fluency interventions. Treatment conditions were ordered in the following sequence: LPP, RR, Re, and LPP with RR (LPP/RR). Analysis and intervention implementation was first administered to English reading followed by Spanish reading. After the initial analyses, the most effective treatments were implemented for English and Spanish reading, respectively. The initial

analyses identified that LPP/RR was the most successful treatment in increasing participant's English oral reading fluency, whereas LPP produced the greatest gains in his Spanish oral reading fluency. The conclusions of the initial analyses of both English and Spanish reading were confirmed by the implementation of the identified treatment conditions in isolation over a longer term. During the replication of the initial analyses, LPP/RR was once again identified as the most effective intervention for English reading; while RR, instead of LPP, led to the greatest performance gain in Spanish reading. The authors explained that the discrepancy between the initial and the second analyses may have occurred because the participant had moved from the acquisition learning stage to the fluency stage in Spanish reading. The results of this investigation suggested that brief experimental analysis can also be used to identify effective reading fluency interventions in Spanish reading as well as English reading.

All the above studies were conducted with students in general education. Welsch (2007) assessed the efficacy of BEA for identifying an effective reading intervention program for students with disabilities. All four participants had been diagnosed with learning disabilities and were receiving special education services. The dependent measures were WCPM, EPM, and recalls (key words or descriptive phrases related to the text read and were orally produced by students) across instructional and generalization passages. The treatment conditions included RR, LPP, RR with easier materials (RR/EM), and LPP with easier materials (LPP/EM). During RR condition, the participants read the instructional passages aloud four times. The experimenter informed the students the number of words read correctly and incorrectly per minute after each reading. During the LPP condition, the student first listened to the experimenter read the instructional passage

one time and the student read the same passage aloud independently one time. During the conditions with easier materials (i.e., RR/EM, LPP/EM) the treatments were administered in the same manner as described above except that the treatment was applied to passages that were one grade level below the students' current instructional level. Students' performance during the first minute of the final reading of the instructional passages and the first minute of the generalization passages were used for data collection purposes.

The experimental procedure consisted of three phases. In Phase 1, a baseline and a brief analysis were conducted. Two baseline conditions, baseline at grade level, and baseline at easier materials were conducted. The four treatment conditions were administered once for each student as a brief analysis. The conditions were counterbalanced across students to reduce sequence effects. In Phase 2, an extended analysis was conducted. Based on the results of the brief analysis, a multi-element design was used in Phase 2 to compare two most effective treatments four to six times for each individual student to confirm or disconfirm the results of Phase 1. Phase 3 was implemented to examine the treatment effects across time. The identified treatment condition in Phase 2 was implemented for 15 to 20 sessions.

The results of the investigation demonstrated that the interventions selected through experimental analyses led to improvements in oral reading fluency for students with disabilities. Specifically, students increased WCPM and decreased level of errors for instructional passages and increased recalls for both instructional and generalization passages. However, the extended analysis confirmed the results of the brief analysis for only two of the participants. The author therefore suggested that brief analyses be used in

combination with extended analyses for decision making concerning instructional methods.

Malloy, Gilbertson, and Maxfield (2007) demonstrated that BEA can be used to select effective reading interventions to increase reading fluency for English language learners (ELLs) with reading difficulties. Five Latino elementary students participated in the study. They were all in general education and referred by their teachers for poor reading performance. The dependent variables were oral reading fluency and maze fluency. Oral reading fluency was measured by the number of correct words read per minute. Maze fluency was determined by the number of correct word choices per minute. The maze passages were constructed by replacing every seventh word of the instructional passages with three word choices.

The experimental conditions included baseline, contingent reward (CR), LPP, RR with EC, key word (KW) with EC, and incremental rehearsal (IR) with EC. During the CR condition, the students could earn a reward of their choice if they could beat their scores from the baseline condition. LPP was administered the same way as described earlier. During the RR with EC condition, error corrections were provided during students' first three readings, and students were also provided with feedback regarding the speed of their reading and errors. For KW with EC, students first circled five unknown words in an instructional passage, and then, students read the passage and the examiner corrected errors while following along. Following reading practice, students repeated the five unknown words after the experimenter modeled reading them. Then the experimenter defined each word in a sentence. In the IR with EC condition, students practiced one unknown word one-at-a-time until all the five unknown words were

presented. The conditions were administered in the order as described above based on a least to most intensive instructional and language support premise. The instructional, maze, and generalization passages were administered at the end of each condition and students' performance was scored for data collection purposes. A mini-withdrawal design was utilized to replicate the effects of the most effective treatment identified through the BEA. An extended analysis was employed to compare the effects of the most effective intervention to a baseline condition using an alternating treatments design.

The results once again demonstrated that students responded to reading interventions idiosyncratically (i.e. RR was selected for two of the participants, KW was effective for one, and two other interventions were effective for the remaining two participants). The study also supported the utility of BEA for identifying effective reading interventions for ELL students, and the extended analysis confirmed the outcomes of the BEA for four of five participants.

Finally, Daly, Bonfiglio, Mattson, Persampieri, and Foreman-Yates (2006) used a BEA to examine the effects of a reading fluency treatment package on easy and difficult passages. Three elementary students referred by their teachers for reading problems participated in the study. During the pre-experimental screening, students read 13 passages aloud for one minute, and then the passages were ranked from easiest to hardest in terms of WCPM and errors per minute for each student. The two easiest and the two most difficult passages were selected to be used in the four conditions of the BEA: control and treatment in easier passages and control and treatment in difficult passages. The control and treatment conditions were tested in a random order. During the control condition, the student simply read a passage aloud for one minute. The treatment package

included: Re, LPP, RR, phrase drill error correction, and syllable segmentation and blending lesson. Phrase drill error correction involved having the student reread phrases containing error words three times after the experimenter modeled correct reading of incorrect words. Syllable segmentation involved breaking the incorrectly read words into individual syllables, and the student repeating each syllable in order and then together as a word after the experimenter. Syllable segmentation was applied after an incorrectly read word had been corrected in the phrase drill error correction and when the student read the word incorrectly again in the next reading.

The results of the BEA showed increased performance in all three participants in treatment passages for both difficulty levels, indicating that treatment was effective at enhancing reading fluency. Although the increases were variable, greater magnitude was observed in the harder passages than in the easier passages for all three participants.

## Parental Involvement in Interventions

Most reading fluency interventions have been conducted by experimenters or trained school personnel in school settings; very few studies have explored the effects of BEA identified reading interventions implemented by parents in home settings. Persampieri et al. (2006) indicated that parents are major supporters in their children's education and play an important role in the academic success of their children. Parent-directed interventions extend the learning environment and opportunities for the children to the home. Involving a parent in a reading intervention conducted outside of the school day can increase the number of opportunities a child has to read. Another benefit of parent tutoring is they can provide one-to-one attention and offer immediate feedback when necessary.

However, parents often do not know how to help their children academically and are often poorly-equipped in doing so. Weinberger (1996) found that only 12 of 42 parents in her study knew how reading was taught in school. McMackin (1993) found many parents felt inhibited about participating in their child's literacy development. However, with sufficient support, studies have shown that parents are able to implement academic interventions accurately and effectively (e.g., Persampieri et al., 2006; Valleley, Evans, & Allen, 2002). In fact, parents have successfully used a range of reading interventions such as modeling, performance feedback, EC, and RR. Additionally, studies have demonstrated that parent-tutoring with these reading interventions has resulted in improved reading fluency and comprehension (Persampieri et al., 2006; Valleley et al., 2002).

Valleley et al. (2002) trained a parent to implement a sight word flash card drill, an overcorrection procedure, and rewards for improved reading. Results indicated that the parent correctly implemented the intervention as prescribed (integrity was checked by having the parent record the extent to which they completed intervention activities), the child's sight word knowledge increased throughout the intervention (from 35 to 82), and the child's reading fluency showed marked improvement (from 8.3 WCPM at baseline to 29 WCPM at the end of the intervention) over the 15 weeks the procedure was implemented.

In their study, Persampieri et al. (2006) conducted two experiments evaluating the effects of parent delivered reading interventions on the reading fluency of participants with learning disabilities. Both experiments used single-case designs. Experiment 1 used a multiple-probe design across passages to establish experimental control when changes

in level, trend, and/or variability occurred only under the condition (reading passage) receiving treatment (parent tutoring). The reading intervention included RR, error correction with sentence repeat, and contingent reward for improvements in performance. Results showed that both participants in Experiment 1 experienced dramatic changes in levels for both WCPM and errors in the instructional passages: the level of reading fluency increased from a mean of 45.4 WCPM to a mean of 76.3 WCPM for one participant, and a mean of 53.8 WCPM to a mean of 115.6 WCPM for the other participant, and the errors made per minute dropped from a mean of 11.0 to a mean of 2.9, and a mean of 7.5 to a mean of 2.0, respectively.

In Experiment 2, a BEA was employed. During the analysis, both the experimenter and the parent implemented intervention trials to confirm the treatment package. Moreover, the experimenter directly observed the parent implement the treatment to make sure the parent was implementing intervention with integrity before the parent used the intervention at home. Assessment results showed that the treatment package was effective in increasing reading performances for all three participants. Additionally, two of the participants' parents obtained performance increases that matched those of the experimenter. The third parent obtained less magnitude in student performance increases but still in the desirable direction. Then, an alternating treatment design was used to evaluate the effectiveness of the treatment package relative to a non-instructional (control) condition. Results confirmed the outcomes of the brief analysis. Additionally, low parent treatment implementation integrity was observed to correspond to decreased student outcomes.

Zhou (2009) investigated the effectiveness of BEA identified reading interventions in improving students' oral reading fluency when implemented by parents. In the study, parents were trained to first conduct a BEA to identify an effective reading intervention for their child. After that, parents implemented the identified intervention with their child for several weeks. Anecdotal data suggested that parents were able to conduct BEAs only when prompts were provided. However, after conducting a BEA which included five different reading interventions, parents were able to implement the identified intervention with acceptable integrity (an average of 85% accuracy). However, only moderate gains were observed for two of the three student participants. Zhou argued that, because interventions occurred in the summer break for these two students, absence of school instruction could have compromised students' gains.

## Home-School Collaboration

According to Cowan, Swearer, and Sheridan (2004), in the history the United State, parents did not begin participating in the educational system until the early 1900s, after the National Parent-Teacher Association (PTA) was founded in 1897. Despite the effort of the national PTA, the progress for parental involvement in education has been very slow, and the extent and depth of parent involvement has been limited. It was not realized until the late 1990s that merely opening the doors for parents is not enough to have meaningful parental involvement, instead, home-school collaboration in which families and schools "work together toward a common goal or set of goals" (Cowan et al., p. 201) should be promoted.

Home-school collaboration is defined as "establishing and maintaining productive working relationships between families and schools to facilitate children's learning"

(Esler, Godberk, & Christenson, 2002, p. 389). According to Cox (2005), the difference between home-school collaboration and parental involvement lies in the focus of home-school collaboration on the joint effort of families and schools in enhancing children's learning experience, whereas parental involvement emphasizes getting parents involved in their children's education. In other words, home-school collaboration calls for more active parent participation in the process. Christenson (1995) pointed out that the vital distinction between the two concepts is that parent involvement is a one-way flow of information between families and schools, whereas home-school collaboration is a two-way information communication between families and schools.

Cowan et al. (2004) stated that home-school collaboration can benefit everyone involved: educators, parents, and students. For parents and educators, their overall understanding of children's background and current level of functioning will be increased through communication across settings. By working toward mutual goals, the relationship between parents and educators can be improved, and they may feel supported by each other. The ultimate goal of home-school collaboration is to enhance students' learning experience. Cowan and colleagues continued to suggest that students will benefit in ways such as improved academic skills and school related behaviors, better attitudes towards school, and better relationship with school personnel.

Improved student outcomes following home-school collaboration have been demonstrated in empirical studies. In her analysis, Cox (2005) reviewed 18 empirical studies using home-school collaboration procedures published in peer-reviewed journals between 1980 and 2002. Experimental designs used in these studies included single-case designs, group designs, and quasi-experimental designs. The majority of the studies

included interventions targeting academic difficulties and school or classroom behavior. The most frequently used strategies in these interventions were school-to-home communication in various forms. The most common component of these strategies was contingent reinforcement applied by parents at home based on students' behavior at school. The ages of the student participants ranged from 4 to 16 years old, and their grades ranged from pre-kindergarten to 10th grade. Of the studies that included participants' gender information, there were approximately equivalent numbers of males and females. For studies that had reported the demographic background of their participants, the majority of the participants came from low SES, African American families.

The methodological features of these studies included, random assignment, documenting program components and linking them to primary outcomes, the use of multiple assessment methods, obtaining measures from multiple sources, and the assessment of the educational or clinical significance of the change in target behavior. Although the reviewed studies varied in terms of methodological quality, there was strong evidence of implementation integrity, measurement quality, and desirable behavior outcomes in the majority of the studies.

The author concluded that interventions using home-school collaboration were effective in helping children improve their academic achievement and school-related behaviors. Specifically, the author concluded that interventions that included two-way information exchange between parents and schools were the most effective. The author continued to state that interventions involving one-way, school-to-home communication in forms of daily report cards and school-to-home notes were effective as well. In

summary, the author suggested that home-school collaboration techniques involving school and home communication were easy to implement and were effective in addressing a variety of school-related problems with children across age and gender.

Jurbergs, Palcic, and Kelley (2007) evaluated the effectiveness of school-home notes in improving students' on-task behavior and class work completion and accuracy in children with ADHD. Two first grade students and four second grade students in general education and their teachers and parents participated. All six students were from low-income, racial minority (African American) families and were referred by their teachers for low levels of on-task behavior.

Dependent variables were the percentage of intervals for on-task behavior and academic productivity. On-task was defined as the student engaged in appropriate, class-work related activities for the entire 15 seconds observation interval. Academic productivity was measured by the percentage of work completed and the percentage of work completed correctly during the morning work period.

The independent variables were school-home note without response cost and school-home note with response cost. At the end of the day, the student took the note home for the parent to add up points earned on the school-home note and deliver consequences based on the criterion previously set. In the school-home note with response cost condition, five smiley faces were added to the note. The student was instructed to cross off a face for each occurrence of inappropriate behavior, and each remaining smiley face was worth one point.

The study employed a withdrawal design with alternating treatments to compare the effects of the two experimental conditions. Results demonstrated that both conditions

led to immediate and meaningful increases in the percentages intervals with on-task behavior compared to baseline. The mean percentages of intervals with on-task behavior decreased as a result of the withdrawal of the treatment. Similar results were observed for work completion and accuracy. Follow-up results showed that on-task behavior was maintained in all six students. No follow-up data were collected for academic productivity. Treatment acceptability data were collected and the school-home note procedure was highly acceptable for all student, teacher, and parent participants.

## Summary

There is little doubt that the importance of reading has been recognized by researchers. Reading research has been extensively conducted in an effort to develop effective reading interventions. However, because students may respond to reading interventions idiosyncratically, reading interventions may be tested to verify that they meet individual students' instructional needs. BEA has been reported to be successful in identifying an effective oral reading fluency intervention for individuals exhibiting reading fluency problems. In almost all of these studies, BEA identified reading interventions were implemented by single discipline personnel in isolated settings (e.g., experimenters in clinic, educators in school, or parents at home). Very few reading interventions have included a conjoint effort of multidiscipline personnel across settings. However, learning is a continuous activity that happens across school and home. Therefore, it is very important to make connections between the school and home. One way to do this is through home-school collaboration. Home-school collaboration has gained increased interest in research and studies have resulted in promising outcomes. However, there is very limited literature base examining the use of home-school

collaboration in reading interventions. Additionally, previous studies most often used school-home notes as a means of communication between the two parties, no studies have used home-school notes with the parent as an integral intervention agent. Besides facilitating communication between home and school, home school notes may serve two other functions, A) Stimulating reading motivation in students, and B) encouraging parental implementation of the intervention. Wigfield (2000) specified that the use of rewards (e.g. tangibles, verbal praise) by teachers, which is a procedure included in the current study, is a common practice used in many schools to promote student reading motivation. Sonnenschein and Schmidt (2000) suggested that establishing a means of communication is a key element in getting parents involved in their children's educational programs.

The purpose of the current study was to investigate if parents were able to implement BEA identified reading interventions with integrity following training and with support (e.g. provision of materials). The current study also evaluated if reading interventions implemented by parents in conjunction with school-based interventions were effective in increasing reading fluency in students who were experiencing difficulties.

## Research Questions

1. Will parents be able to implement reading interventions with integrity following training?
2. Will parent implemented reading interventions in conjunction with a school-based Tier II intervention effectively increase students' reading fluency?

# CHAPTER III

# METHODOLOGY

## Participants and Settings

Four general education elementary students, their reading intervention teacher, and their parents participated in the study. A university-based Institutional Review Board approved the investigation prior to its onset (Appendix A). Additionally, parent and teacher consent for participation were obtained prior to the start of the study. All four student participants and their parents were African American. All students are referred to

by pseudonyms. Mike was a second grade male student. Alice, Sandy, and Tim were first grade students from the same classroom. Student participants were selected based on the following criteria: (1) students were reading at frustrational level for their current grade level reading materials (less than 40 WCPM for first and second grades according to standards described by Fuchs, Fuchs, and Deno, 1982), and (2) students were receiving the same standard Tier II intervention (described below) provided by their school and were not responding to the intervention (students were placed in intervention based on their performance in the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) benchmarking at the beginning of the school year, and had been in the intervention for longer than three months). All four students were receiving the intervention from the same intervention teacher, Ms. Bunny. Ms. Bunny, employed by a reading institute as an intervention specialist and literacy coach, was assigned to the participants' school to work as a reading interventionist within the school's Response to Intervention system. Ms. Bunny reported to have received a bachelor's degree in Elementary Education with an emphasis in Reading, and had been working as an interventionist in elementary schools for four years by the beginning of the study. However, Ms. Bunny reported inconsistent intervention implementation for a period of time due to 1) becoming responsible for teaching when the three first grade students' teacher was away for maternity leave, and 2) she was involved in reading assessment across the state at the end of the school year. Additionally, these three students experienced inconsistent teaching when multiple substitute teachers (including Ms. Bunny) were used to replace the classroom teacher.

All four students were recruited from the same local elementary school located in a southeastern state. The racial makeup of the school was as follows: 92% Black, 5% White, 3% Hispanic, and less than 1% Asian. Among those students, 99% of students were eligible for free or reduced price lunch (NCES, 2008-2009). Parents were trained individually at their child's school or at their home (due to transportation difficulties) by the primary experimenter to implement reading interventions. Baseline, BEA, and progress monitoring data were collected in the student's school by the experimenter and a trained graduate student in school psychology. Parents implemented interventions with their child in their home. During the entire duration of the intervention phase, the experimenter was in routine contact with the parents to provide reminders and support. Parents were informed that at the termination of each student's intervention, they would receive a $10 Walmart gift card for participating in the study. Alice's parent reportedly received some college education, Mike, Tim, and Sandy's parents reported having competed $10^{th}$, $11^{th}$, and $12^{th}$ grades, respectively. At the beginning of the study, only one parent was employed.

## Materials

The experimenter provided parents with a digital timer, an audiocassette recorder with cassette tapes, a clip board, copie of the instructional passages (described below) a packet of home-school notes (Appendix B), and a folder to hold the home-school notes.

For each intervention, an intervention implementation script was provided to the parent. Finally, a bag was provided to keep all the above materials together.

*Reading probes.* Instructional and generalization passages for the brief experimental analyses were taken from the Silver, Burdett, and Ginn basal reading series (Pearson et al., 1989) in the order of their appearances in the series. Passages are approximately 100 words in length, do not contain any pictures, and are controlled for grade-level. For each passage, there is an examiner copy with a corresponding student copy. The generalization passages contain a large percentage (80% - 90%) of the same words as the corresponding instructional passages. The instructional passages were used to implement reading interventions in each BEA condition; the generalization passages were used to evaluate immediate generalized effects of each intervention.

DIBELS (DIBELS; Good & Kaminski, 2002) oral reading fluency progress monitoring passages were used for intervention. Reliability of DIBELS oral reading fluency passages have been reported to be high, with test-retest reliabilities ranging from .92 to .97 and alternate form reliabilities ranging from .89 to .94. Criterion-referenced validity has been reported to range from .52 to .91 (Good & Kaminski, 2002).

AIMS web reading probes (Edformation, 2003) were used to collect progress monitoring data. These probes can be used to measure oral reading fluency for grades 1-8 and have been found to be both reliable and valid in measuring gains in oral reading fluency. The probes were designed so that students would be assessed equally, regardless of differences across curricula or changes in curricula over time. Test-retest reliability for AIMSweb probes has been reported to be .92, and alternate form reliability has been reported to be .89, using students from grades one through six as the participant pool. The

criterion-referenced validity of AIMSweb probes has been reported to be .91 for Ginn and Scott-Foresman basal readers as the criterion measure, using a participant pool of first through sixth graders (Shinn & Shinn, 2002).

*Intervention Rating Profile-15 (IRP-15).* At the conclusion of the study, parents were requested to fill out a modified version of the Intervention Rating Profile-15 (IRP-15; Martens, Witt, Elliott, & Darveux, 1985) to assess intervention acceptability. The instrument was modified such that parents were asked to rate their acceptability of the academic versus behavioral interventions. Freer and Watson (1999) indicated that minor modification made as above did not alter the psychometric properties of the instrument. In this study, parents were asked to rate the specific reading interventions they implemented with their child. The IRP-15 is a 15-item Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). Ratings can produce a minimum score of 15 and a maximum score of 90. A total score above 52.5 represents a rating of acceptable (Von Brock and Elliott, 1987). The IRP-15 is an internally consistent instrument with Cronbach's alpha of .98 (Martens et al., 1985).

## Response Definitions and Data Collection

*Dependent Variables.* WCPM and EPM were measured to examine intervention effects on reading fluency. A correctly read word was defined as a word that is pronounced correctly within three seconds, given the correct reading context, or a self-correction within 3 seconds (Shinn, 1989). Errors were defined as the following four types: (1) mispronunciations, words that were misread; (2) substitutions, words that were substituted for the actual words; (3) omission, words that were skipped or not read; and (4)

pause, if a student hesitated on a word for three seconds or more, the word was provided and it was counted as an error (Shinn, 1989).

*Data Collection.* Intervention data were collected by trained parents at home (training procedures described below). Parents collected WCPM and EPM data from their child's performance on the instructional passage. Progress monitoring data were collected by the primary experimenter at a quiet location in the student's school.

## Experimental Design

*Brief Experimental Analysis.* During the BEA, a brief multi-element design with a mini-withdrawal was applied to compare the effects of each experimental condition (see below for experimental conditions) to baseline and to other conditions. The sequence of the conditions was randomized within and across participants. The purpose was to identify the intervention or intervention package that produced greatest gains in students' oral reading fluency for instructional and generalization passages. Following a test of all conditions, a mini-withdrawal was introduced to provide a stronger demonstration of experimental control.

*Intervention.* A multiple baseline across participants design was employed for the intervention phase. In this design, reading interventions were implemented in a staggered manner across participants. A reading intervention or intervention package was implemented with the first participant following a low stable or decreasing trend during baseline, whereas the other three participants remained in baseline. Interventions were not introduced for these three participants until there was an increasing or stable trend in WCPM in the previous participant's intervention data.

## Experimental Procedures

*Baseline.* Prior to BEA, student participants were asked to read reading probes and the experimenter scored WCPM and EPM (see Appendix C for instructions) using standard curriculum-based measurement (CBM) procedures. The participants read three passages at their grade levels, WCPM and EPM were recorded for each passage, and the median scores were used as an indicator of their reading level. After the BEA, one student entered intervention phase, the other three students continued in baseline.

*Brief Experimental Analysis (see Appendix D for protocol).* The experimental conditions for the BEA included RR (RR), RR with EC (RR/EC), LPP with RR (LPP/RR), Re (Re), and LPP with RR and EC (LPP/RR/EC) (see below for details). Each condition was applied to one instructional passage and only one datum was collected. The generalized effects of each condition were immediately evaluated by having the students read the corresponding generalization passage at the end of each treatment condition. Generalization data were collected in the same manner as the treatment data. The treatment or treatment package that produced best performance for the instructional passage with best generalization effects was selected for implementation as an intervention for individual students. If the best performance and the best generalization did not match, the treatment/package that produced best performance for the instructional passage was selected.

*RR (Appendix E).* RR (Samuels, 1979) provided students with more reading practice by having them repeatedly read the same passage aloud four times. During the first three readings, the interventionist (the experimenter in the BEA or the parent in intervention implementation) read along silently and provided corrective feedback. During the final

reading, the interventionist marked errors that the student committed for the first minute of reading. At the end of the first minute, the interventionist placed a bracket after the last word read. The child was instructed to continue finishing reading the entire passage. The interventionist recorded WCPM and EPM as an index of reading fluency. The generalization passage was administered immediately after the last reading of the instructional passage.

*RR/EC* (O'Shea et al., 1984, Appendix F). In this condition, the student read the same passage aloud four times. However, during the first three times of reading, if the student committed an error, the interventionist provided the student with the correct word and asked the student to repeat the correct word three times before resuming reading. No corrections were provided during the first minute of the fourth reading and WCPM and EPM were recorded in the same manner as described above.

*LPP+RR* (Rose & Sherry, 1984, Appendix G). During this condition, the interventionist first read the instructional passage to the student (modeling fluent reading) while the child read along silently. The student was instructed to follow along using their index finger as the interventionist read the passage. After listening to the interventionist reading the passage, the student read the same passage aloud independently three times. WCPM and EPM were recorded in the same manner as above. The generalization passage was administered immediately following the last reading of the instructional passage.

*LPP+RR+EC* (Appendix H). During this condition, the interventionist read the passage to the student first to model fluent reading, and then the student read the same passage three more times to practice reading. Error corrections were made during the first

three times the student read the passage in the same fashion as described in RR/EC. WCPM and EPM were scored by the interventionist for the first minute of the student's fourth reading without error correction. After that, the student was allowed to finish reading the entire passage with error correction. The generalization passage was administered immediately after the child read the instructional passage for the fourth time.

*Re* (Appendix I). A Re condition was included in the BEA to test for a performance deficit (Duhon, Noell, Witt, Freeland, Dufrene, and Gilbertson, 2004). A performance deficit occurs when a student possesses the skills necessary to competently perform a task, but is not performing the task to expectations. Previous research by Duhon and colleagues indicates that brief tests may predict the extent to which students respond to performance-based and skill-based interventions respectively. During this condition, students were informed that they would earn a reward if they could exceed their score in WCPM from the previous session (i.e., baseline). A container including educationally related items (e. g. pencils and stickers) was presented to students and they were allowed to explore the box. Then the box was taken out of students' reach but within their vision. After students finished reading the entire instructional passage, the interventionist told students their scores for WCPM in the first minute and if they exceeded their median score from baseline, access to one item from the container was allowed. The generalization passage was administered immediately after the reward passage.

*Parent Training.* The primary experimenter trained parents individually to implement the particular reading intervention identified by BEA for their child. The training included three parts suggested by Sterling-Turner, Watson, Wildmon, Watkins,

and Little (2000): (a) the steps for each reading intervention were described and explained to the parent; (b) intervention implementation was modeled for the parent; and (c) the parent was observed practicing the intervention procedure with the child with immediate feedback being provided. One hundred percent accuracy for all the steps included in respective reading intervention protocols was used as criterion for parents' mastery.

Parents were also trained to collect WCPM and EPM data for intervention passages. Parents had to reach 90% inter-observer agreement (IOA) with the researcher. IOA was defined as the percentage agreement of occurrences and non-occurrences of the dependent variables between two data collectors. IOA was calculated on a word-by-word basis and calculated by dividing the number of agreements by the number of agreements plus the number of disagreements and multiplying by 100. If IOA fell below 90%, for any parent, then that parent was retrained until they reach the 90% agreement criterion.

*Intervention Implementation and Progress Monitoring.* After training, parents implemented the intervention with their child three sessions per week, with no more than two sessions occurring in one day, for several weeks. Parents implemented the intervention that was identified during their child's BEA. All the intervention sessions conducted by parents were audio-taped for data collection purposes. During the entire duration of intervention, the primary experimenter monitored students' progress individually once per week at school. Students were taken to a quiet location in school for progress monitoring. Progress monitoring passages were randomly selected from AIMSweb reading probes at students' current grade level. On the day of progress monitoring, home-school notes (see below for description), reading intervention passages,

and audiotapes from the previous week were collected for treatment integrity and IOA data collection purposes. The experimenter contacted the parent one day in advance to remind them to put the passages, audiotapes, and home-school notes in the folder and place them in the folder in their child's school bag to be brought to school.

*Home-School Note*. A home-school note was included with the intervention to facilitate communication between the parent and the intervention teacher. The home school note included a reward component. The reward was contingent on the student exceeding the median WCPM score in previous three sessions. The reward was presented in the form of stickers. Each time after parents finished a session, they were required to fill out a home-school note. The note included the following information, the date of the intervention session, the number of the instructional passage, WCPM and EPM from that session, and if the student exceeded the median WCPM score from the previous three sessions to earn a sticker or not, and parent and teacher signatures. The parents were taught how to find the median score from the previous three sessions. The parent was responsible for ensuring (providing reminders, placing the folder with the note in the student's backpack, etc.) the student brought the note to school to show the reading intervention teacher. The teacher would place a sticker on the note or indicate on the note that a sticker was delivered to the student if the student met the above criterion. If the student did not earn a sticker, the teacher should provide verbal praise for reading. Then the teacher kept the note in each individual student's folder at school. Both parent and teacher would sign the note to indicate that they had reviewed the note.

*Tier II intervention*. All participating students were receiving standardized Tier II intervention through their school. For the intervention, students met with Ms. Bunny

three times per week, for 30 minutes each time in small groups of three to five students. During the meeting, students spent their first five minutes practicing phonics, the next 10 minutes were used to learn sight words, and lastly, students practiced reading one story aloud for 15 min. As a result, variability with regard to types or intensity of the interventions that students were receiving was largely reduced.

## Procedural Fidelity, Inter-observer Agreement, and Treatment Integrity

*Procedural fidelity for BEA.* Procedural fidelity was evaluated for 25% of the BEA sessions. A trained graduate student in school psychology directly observed the primary experimenter conducting an entire BEA session with one of the four students and completed an integrity checklist (Appendix J). Procedural integrity was calculated by dividing the number of steps correctly implemented by the total number of analysis steps and multiplying by 100. Procedural integrity was 100% for the BEA that was evaluated.

*Inter-observer agreement (IOA)*. The primary experimenter and previously trained graduate students in school psychology collected IOA data for the dependent measures. For BEA, a data collector directly observed the experimenter conduct a BEA with one student. For other experimental sessions, the data collectors listened to randomly selected audiotape recorded sessions and scored the passage for WCPM and EPM. IOA was conducted on a word-by-word basis and calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. For the selected BEA session, IOA was 100% for WCPM and EPM for all the intervention and generalization passages.

IOA was collected for approximately 30% of Mike's sessions, 33% of Alice's experimental sessions, 24% of Sandy's reading sessions, and 33% of Tim's reading

sessions. The majority of IOA means fell within 80% and 90%. The following table illustrates IOA scores for baseline, instructional, and progress monitoring passages for each participating student.

Table 1

*IOA Scores for Baseline, Instructional, and Progress Monitoring Passages*

| | | Baseline Mean (Range) | Instructional Mean (Range) | Progress monitoring Mean (Range) |
|---|---|---|---|---|
| Mike | WCPM | 100% (100-100%) | 95.3% (91.3-100%) | 97.3% (95.1-100%) |
| | EPM | 100% (100-100%) | 83.1% (66.7-100%) | 85.3% (77.8-100%) |
| Alice | WCPM | 96.9% (93.9-100%) | 93.2% (89.7-100%) | 95.7% (91.7-100%) |
| | EPM | 86.5% (75-100%) | 85.7% (66.7-100%) | 90.1% (77.8-100%) |
| Sandy | WCPM | 96.5% (90.1-100%) | 93.3% (89.3-100%) | 95.1% (90.0-100%) |
| | EPM | 93.8% (90.9-100%) | 88.3% (71.4-100%) | 89.7% (80-100%) |
| Tim | WCPM | 97.6% (93.3-100%) | 93.6% (89.7-100%) | 96.3% (94.1-100%) |
| | EPM | 91.7% (75-100%) | 88.8% (80-100%) | 95.7% (80-100%) |

*Parent treatment integrity.* One week of intervention sessions implemented by parents was considered a complete treatment unit. To evaluate parent treatment integrity, the experimenter randomly chose two weeks of each student's intervention (approximately 30 to 40% of the intervention weeks) to complete the Treatment Integrity

Checklists (Appendixes K, L, and M). Treatment integrity checklists vary from intervention to intervention. Examples of intervention steps included in checklists were: conducted three intervention sessions per week, marked errors during the timed one minute reading, and recorded WCPM and EPM on the passage page in the scoring booklet. In order to complete the checklists, the experimenter listened to audiotaped intervention sessions, and reviewed parent scoring booklets and the home-school notes. The percentage of intervention steps correctly implemented by the parents during the reading intervention week was calculated based on the number of intervention steps correctly completed by the parents dividing by the total number of possible intervention steps on the checklists and multiplying by 100. Mike's mother's average integrity score for the two selected intervention weeks was 89.2% (range = 82.1-96.4%) Alice's mother received a treatment integrity score of 79.0% (range = 68.4-89.5%). Treatment integrity scores ranged from 81.3% to 86.4% for Sandy's mother, and the average was 83.9% Tim's mother average integrity score was 76.6% (range = 71.4-81.8%) on the integrity checklist for the selected two weeks of intervention.

IOA data were collected for parent treatment integrity assessment by a school psychology graduate student. The IOA data collector randomly selected three (37.5%) chosen intervention weeks that were evaluated for treatment integrity to complete the checklists. As a result, one week of Mike, Alice, and Tim's interventions were chosen. IOA was calculated by dividing the agreements for integrity checklist items by the number of agreements and disagreements for integrity checklist items and multiplying by 100. IOA for parent treatment integrity evaluation was 95.2% (range = 89.3-100%).

## Data Analysis

Data analysis included visual analysis of WCPM and EPM. Visual analysis of BEA data included inspection of level as single sessions occurred for each condition which precludes inspection of variability and trend. The selection criteria for the most effective treatment condition were based on the decision-making steps described in Malloy et al. (2007). First, in order to be identified as the most effective condition, the treatment had to have the largest gains in WCPM on instructional passage when compared to baseline. Additionally, the treatment also had to have relatively larger gains in WCPM on generalization passage when compared to baseline. If one condition was identified, a second baseline was introduced as a mini-withdrawal, and the identified condition was once again administered for validation. If two conditions were equally effective, then the one that required the least time and adult effort was considered the most effective condition and further validated using the withdrawal procedure described above. Data analysis for intervention sessions included evaluation of level, trend, and variability.

# CHAPTER IV

# RESULTS

## *Student Oral Reading Outcomes during baseline and BEA*

*Mike.* Mike's reading performance during baseline and the BEA is illustrated in Figure 1. During baseline, Mike received scores of 43, 36, and 34 WCPM, his median score was 36 WCPM, and $M = 37.6$. EPM were 2, 4, and 4. During the BEA, Mike's best performance occurred in the RR condition. His instructional scores in RR were 69 WCPM and 2 EPM. For the corresponding generalization passage, he read 55 WCPM and made 2 EPM. The mini-withdrawal condition resulted in performance similar to the original baseline level (39 WCPM with 4 EPM). Following the mini-withdrawal, one RR condition was re-implemented. Mike read 63 WCPM and made 4 EPM on the instructional passage. For the generalization passage, he read 51 WCPM and made 1 EPM. Consequently, RR was deemed the most effective intervention for Mike based on results from the BEA.

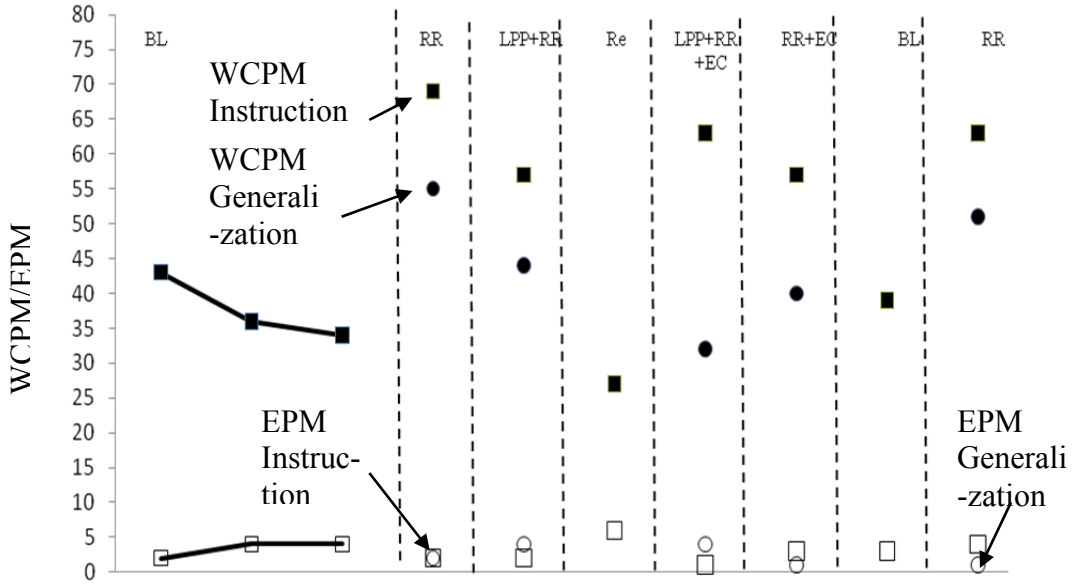


*Figure 1.* Number of WCPM and EPM in instructional passages and generalization passages during baseline and BEA for Mike.

*Alice.* Alice's reading performance during baseline and the BEA is illustrated in Figure 2. Alice's baseline scores prior to BEA were 27, 30, and 18 WCPM, her corresponding EPM were 7, 5, and 6. During the BEA, Alice's best performance occurred under the RR condition, 46 WCPM with 5 EPM on the instructional passage. For the generalization passage, she received scores of 27 WCPM and 7 EPM. During the miniwithdrawal, her performance went back to the original baseline level with 23 WCPM and 8 EPM. Her second RR condition following withdrawal resulted in scores of 42 WCPM with 6 EPM for the instructional passage and 29 WCPM with 5 EPM for the generalization passage. RR was selected for Alice as the most effective intervention.

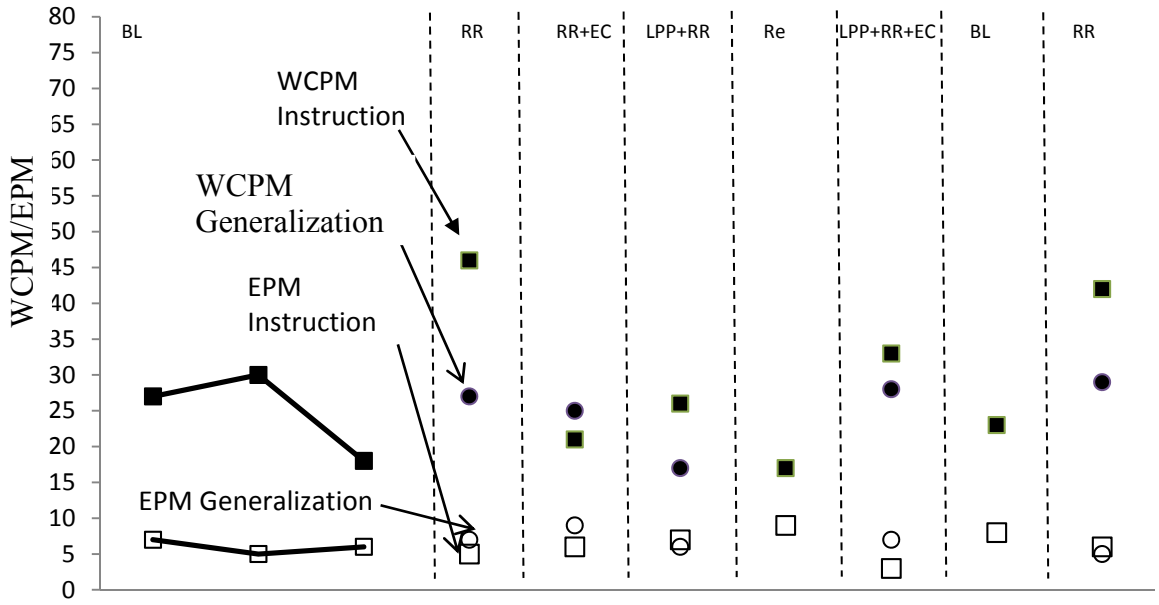


*Figure 2.* Number of WCPM and EPM in instructional passages and generalization passages during baseline and BEA for Alice.

*Sandy.* Sandy's reading performance during baseline and the BEA is illustrated in Figure 3. Sandy received scores of 11, 11, and 12 WCPM, and 9, 9, and 8 EPM during baseline. RR+EC appeared to be the most effective intervention for Sandy as evidenced by her scores of 17 WCPM and 7 EPM for the instructional passage. On the corresponding generalization passage, she read 11 WCPM and made 10 EPM. Sandy's performance (12 WCPM and 11 EPM) was comparable with her baseline performance level during the mini-withdrawal, and the reimplementation of RR+EC resulted in improved scores (18 WCPM and 7 EPM) for the instructional passage. Therefore, RR+EC was identified as the most effective intervention for Sandy.

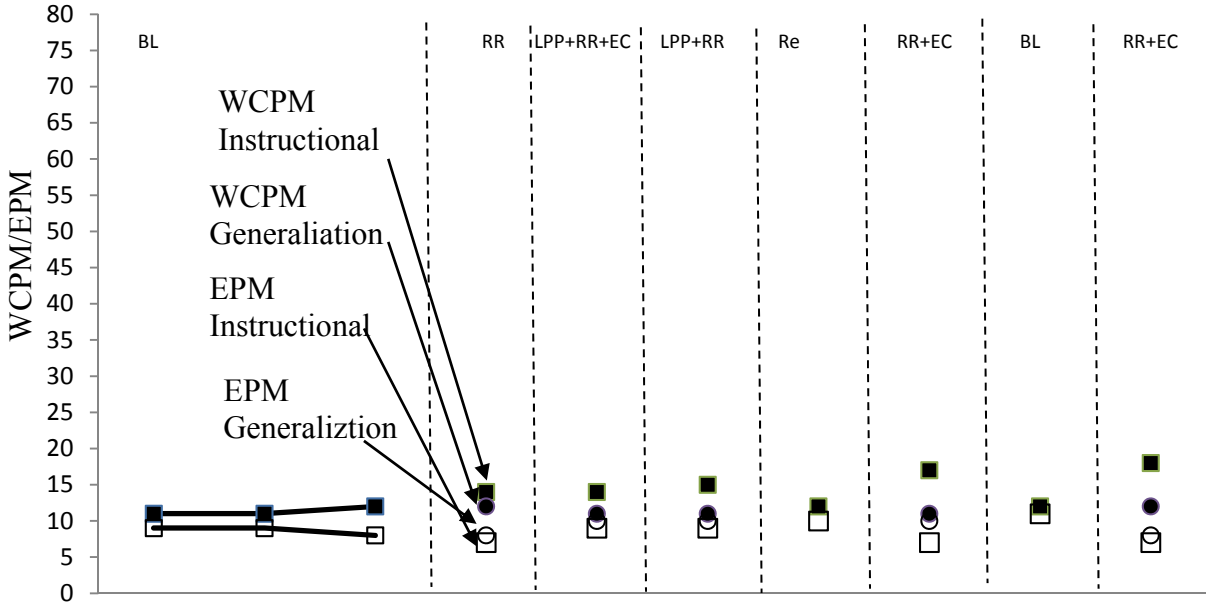


*Figure 3*. Number of WCPM and EPM in instructional passages and generalization passages during baseline and BEA for Sandy.

*Tim.* Tim's reading performance during baseline prior to the BEA was variable (Figure 4). His average scores were 33.9 WCPM and 6.9 EPM. During the BEA, Tim's performance under the Re (59 WCPM and 4 EPM) and LPP + RR conditions (67 WCPM and 0 EPM) resulted in substantial improvements in performance relative to baseline. Therefore, it was decided that an extended analysis would be conducted with those two conditions. During the extended analysis, three conditions of LPP+RR and three conditions of Re were implemented. Results indicated that Tim's performance during LPP+RR conditions ($M$ = 66.7 WCPM , range = 59-75 WCPM) was consistently better than his performance during Re conditions ($M$ = 51.3 WCPM, range = 46-54 WCPM). As a result, LPP+RR was selected as the most effective intervention for Tim.

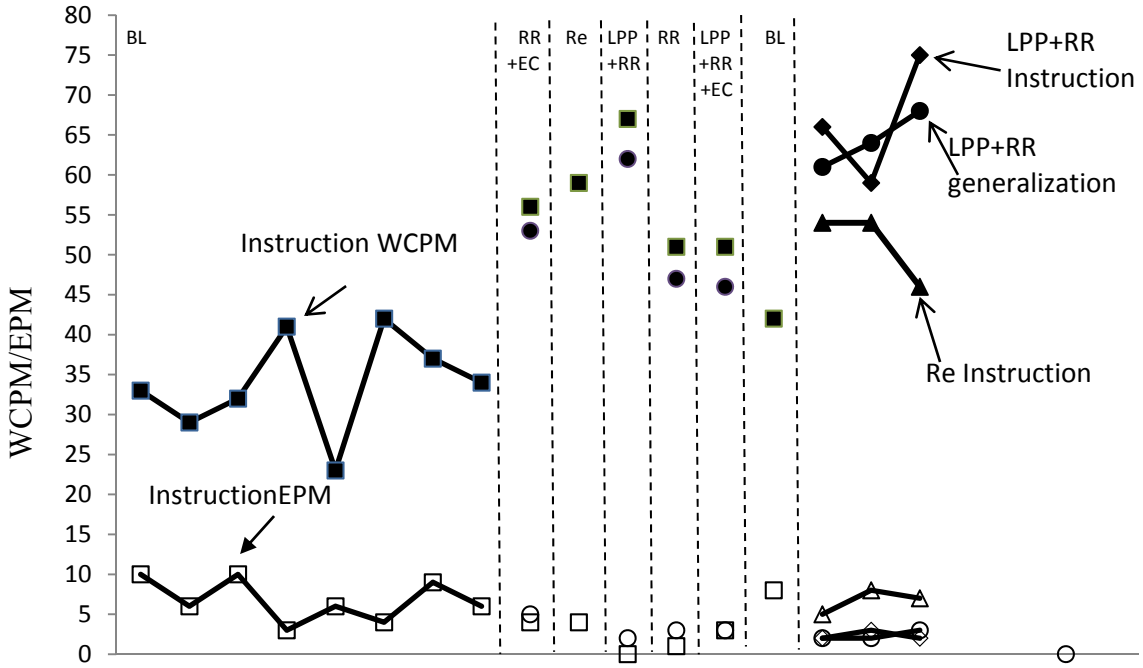


*Figure 4.* Number of WCPM and EPM in instructional passages and generalization passages during baseline and BEA for Tim.

*Student Oral Reading Outcomes During Intervention (as illustrated in Figure 5)*

*Mike.* As illustrated in Figure 5, during baseline, Mike's mean WCPM was 37.6, and the scores were steadily trending downward. Immediately following the implementation of the RR intervention, there was slight increase in Mike's reading performance in terms of WCPM for instructional passages. Over the course of seven weeks of intervention, Mike's reading scores in instructional passages ranged from 36 to 97 WCPM with a mean of 67.5. His EPM scores ranged from 0 to 22 with a mean of 3.2. Mike's scores for progress monitoring passages ranged from 42 to 69 WCPM with a mean of 55.3 WCPM; EPM ranged from 0 to 4 with a mean of 1.7, which was reduced from baseline mean EPM of 3.3. As illustrated in the graph, although there was some degree of variability at the beginning and the end of the intervention, overall, Mike made

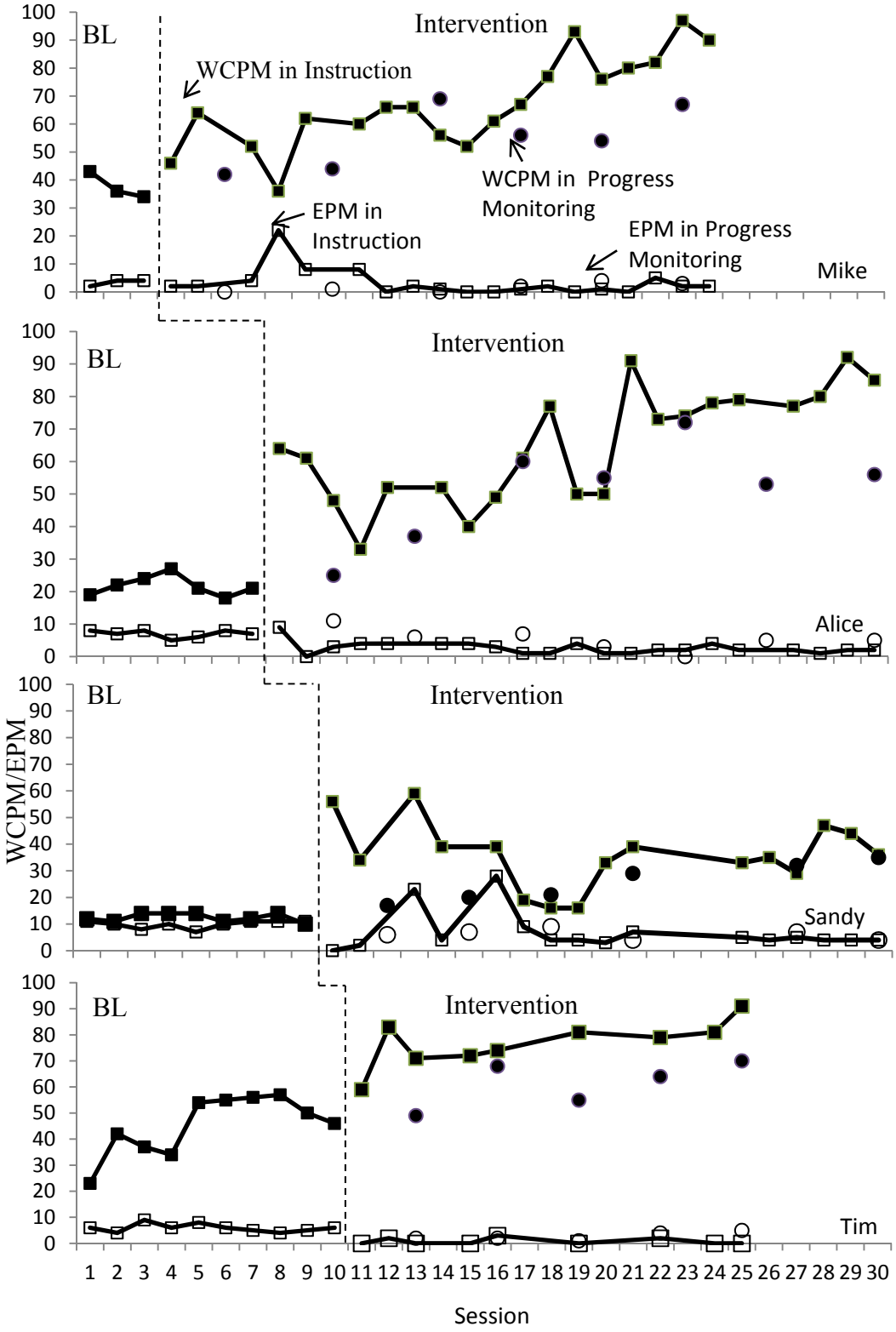


*Figure 5.* Number of WCPM and EPM in instructional passages and progress monitoring passages during interventions for Mike, Alice, Sandy, and Tim.

steady progress during the intervention and there was a visible ascending trend in the graph. Mike's weekly growth in WCPM was at an average of 4.3 words, which was above the expected weekly growth rate for second grade general education students (1.66 words per week, Deno et al., 2001). Finally, by the end of the intervention, Mike's oral reading performance was very likely to be at the mastery level for second grade level reading materials as evidenced by his performance (67 WCPM with 3 EPM) on the last progress monitoring passage. Overall, the intervention improved Mike's reading performance from Frustruational level (baseline $M$ = 37.7 WCPM) to Instructional level (progress monitoring $M$ = 55.3 WCPM, approximating mastery level > 60 WCPM).

*Alice*. As can be seen in Figure 5, Alice's scores during baseline were fairly stable, and the average WCPM was 21.7. However, immediately after the implementation of the intervention, performance for instructional passages was improved greatly. Although Alice's performance for instructional passages was moderately variable for the first half of the intervention phase, variability was greatly reduced towards the end of the intervention phase. The graph demonstrated visible ascending trends for both instructional and progress monitoring passages. During the intervention, Alice's scores ranged from 33 to 92 WCPM for the instructional passages ($M$ = 64.1). Her EPM ranged from 0 to 9 with a mean of 2.6. For progress monitoring passages, Alice's scores ranged from 25 to 60 WCPM with an average of 51.1 WCPM, her EPM ranged from 0 to 11 with an average of 5.3. Alice's average weekly growth rate in WCPM was 4.2 words for the progress monitoring passages, which was above the expected gain of 1.8 words per week for a first grade general education student (Deno et al., 2001). Furthermore, Alice's

reading level was increased from Frustrational at baseline (*M* = 21.7 WCPM) to Instructional ( *M* = 51.1 WCPM for progress monitoring passages) after the intervention.

*Sandy.* During baseline, Sandy's reading performance was stable and at a very low level (*M* = 12.4 WCPM, range = 10-14 WCPM). Additionally, EPM was 9.9 (range = 7-11). It should be noted that for one of the intervention weeks, Sandy's mother failed to implement any session. Sandy experienced immediate growth in her WCPM for instructional passages upon entering the intervention phase. However, large variability in her reading performance was observed throughout the intervention. She received scores ranging from 16 to 87 WCPM for instructional passages (*M* = 41). Her EPM for instructional passages ranged from 0 to 28 with a mean of 6.8. For progress monitoring passages, her WCPM scores ranged from 17 to 35 with a mean of 25.6. EPM ranged from 6 to 9 (*M* = 6.2). As demonstrated by the graph, despite of the variability in her scores on instructional passages, Sandy made slow but steady gains for progress monitoring passages during the intervention. Her weekly growth in WCPM averaged 2.2 words. Sandy's intervention continued for six weeks until it had to be terminated due to the end of the school year.

*Tim.* Tim's performance during baseline for WCPM was fairly stable during the final six sessions. Following intervention implementation, Tim's WCPM for instructional passages increased slightly. Tim's average WCPM during baseline was 45.4, which placed his reading at the instructional level. This did not disqualify him from the study for two reasons. First of all, his baseline mean before the BEA and the extended BEA was 33.9 WCPM, which was within the range of the Frustrational level. Secondly, during the extended BEA, Tim received six sessions of interventions (three LPP+RR conditions

and three Re conditions), and prior to LPP+RR being identified as the most effective intervention for him. It appeared that Tim responded to the interventions and his WCPM increased during the extended analysis. Following the extended BEA, Tim continued in baseline and his improved reading performance sustained for a few sessions. LPP+RR was implemented before further deterioration of his performance. The implementation of the intervention resulted in immediate increases in Tim's WCPM. During the intervention, Tim's WCPM ranged from 59 to 91 for the instructional passages, $M = 78.3$. His EPM ranged from 0 to 3 with a mean of 1. For progress monitoring passages, Tim's WCPM ranged from 49 to 70 with a mean of 61.2. His EPM ranged from 0 to 5 with a mean of 2.8. As illustrated in the graph, Tim's reading performance during the intervention was very stable and steadily progressing for both instructional and progress monitoring passages. At the time of termination, Tim's mean WCPM for progress monitoring passages was 61.2 which fell within the range of the mastery level of reading performance. Tim's average weekly growth rate in WCPM was approximately 3.2 words for the progress monitoring passages. The intervention was terminated for Tim after five weeks when the school year ended.

*Intervention Rating Profile-15 (IRP-15).* At the conclusion of the study, all parents were asked to complete a modified version of the IRP-15 (IRP-15; Martens, et al., 1985) to assess treatment acceptability. Parents rated the specific intervention they implemented with their child. Overall, all parents rated interventions as acceptable. Mike, Alice, Sandy, and Tim's mothers' ratings resulted in scores of 86, 85, 90, and 89, respectively.

# CHAPTER V

# DISCUSSION

The purpose of the study was to investigate if parents were able to conduct reading intervention sessions with integrity following training. Additionally, this study investigated if the combination of home-based and school delivered interventions would further improve students' oral reading fluency.

Parents' treatment integrity data indicate that they were able to implement reading fluency interventions at a fairly high level, although there was some variability. Mean treatment integrity for all parents was 82.2%, (range = 68.4-96.4%). Results from this study are similar to those obtained by Zhou (2009), albeit with lower overall integrity. These data suggest that parents may be able to implement reading fluency interventions with appropriate integrity. Results such as these are encouraging for school-based professionals that engage in conjoint behavioral consultation (CBC; Sheridan & Kratochwill, 1992), as parents may be included as intervention agents given the findings of this study and previous studies (Colton & Sheridan, 1998; Galloway & Sheridan, 1994; Sheridan, Kratochwill, & Elliott, 1990; Sheridan,Warnes, Cowan, Schemm, & Clarke, 2004).

Previous research (Persampieri et al., 2006; Valleley et al., 2002) has suggested that parents were able to implement academic interventions accurately and effectively if they were provided with sufficient support. It seemed to hold true for this study as well.

In this study, parents were provided with intervention implementation training and all intervention materials. Additionally, the experimenter routinely contacted parents through phone calls and written notes for problem solving (such as recorder malfunction). So, while this study provides information regarding parent implementation of reading fluency interventions while being provided with substantial supports, it is unknown if parent implementation would have been as high if less supports were provided. Therefore, additional research is needed regarding the level of supports that are necessary for accurate and consistent intervention implementation by parents.

Parent integrity findings from this study are especially interesting when their demographic characteristics are compared to those of parents in previous research employing home-school collaboration. In particular, CBC studies, especially those utilizing single subject design, have typically included non-minority parents from middle class or upper-middle class backgrounds (Galloway & Sheridan, 1994; Weiner, Sheridan, & Jenson, 1998), and this study is one of very few that involved low SES minority parents. Therefore, the study provides preliminary support for including ethnic minority parents of low SES as interventionists in the context of CBC. This conclusion is further supported by Sheridan, Eagle, and Doll (2006), which investigated the efficacy of CBC with a sample of students with and without diversity. Results suggested that parents from diverse backgrounds (e.g. low SES, minorities), along with non-minority parents, were able to effectively participate in CBC. Among the four mothers in this study, Tim's mother received the lowest integrity mean score of 76.6%. Tim's mother was a single mother with two children living with her parents, grandparents, and other family members. Given the difficulties of her situation, it is not surprising that Tim's mother

displayed the lowest overall integrity score. However, it is noteworthy that despite having the lowest overall integrity score, her treatment integrity was still at least moderate. As a result, data are provided regarding moderate treatment implementation for a parent with substantial psychosocial stressors. Future research may continue to examine the extent to which low SES parents are able to implement interventions following training. Moreover, future research is needed to identify the supports that are needed to increase and maintain intervention implementation for parents experiencing substantial psychosocial stressors.

Student outcome data indicated that all four student participants made gains in their oral reading fluency for both intervention and progress monitoring passages. Three of the students (Mike, Alice, and Tim) made large gains for both categories of passages. Among the four students, Mike and Alice made the greatest gains. Mike's mean WCPM were 36.7 in baseline, 67.5 for the instructional passages, and 55.3 for the progress monitoring passages during intervention. His baseline mean placed him at the Frustrational level (<40 WCPM) for second grade reading probes, while his mean for progress monitoring passages placed him at the Instructional level (40-60 WCPM) (Fuchs, Fuchs, & Deno, 1982). Alice's baseline mean was 21.7 WCPM, while her mean scores during intervention were 65.1 WCPM for instructional passages and 55.1WCPM for progress monitoring passages. Her baseline mean placed her at the Frustrational level for first grade reading probes, whereas her mean for progress monitoring passages fell within the upper range of Instructional level.

Despite that Tim's mother implemented the intervention with less integrity comparing to other three mothers, Tim still made modest gains for WCPM. His baseline mean was 45.4 WCPM, and his mean scores during intervention were 78.3 for

instructional passages and 61.2 for the progress monitoring passages. As a result, following intervention, mean WCPM scores for instructional and progress monitoring passages were at the mastery level.

Sandy demonstrated the least improvement for oral reading fluency for progress monitoring passages among the four students. As indicated by her mean of 25.7 WCPM for progress monitoring passages, even though the mean was higher than her baseline mean of 12.4 WCPM, her reading fluency was still within the Frustrational range. Moreover, her EPM remained similar to baseline level, as evidenced by her EPM mean of 6.2 in baseline and an EPM mean of 6.8 for progress monitoring passages. Although her mean of 41 WCPM for instructional passages fell in the lower range of the Instructional level for first grade reading probes, as noted earlier, her WCPM scores for instructional passages demonstrated great variability at the first half of the intervention.

Although Sandy's mother obtained an integrity mean score of 83.9%, it is important to note that the items she missed were elements that were essential to the RR+EC intervention. For example, she repeatedly missed items such as *Had the student read the passage four times, and Implemented three sessions per week*. Additionally, there was one week that she did not implement even one session. So, while her mean integrity score was high, integrity for critical intervention components was poor. This was a result of a limitation to the integrity evaluation, and that issue is described more fully below.

The present study has several limitations. First, external validity is limited in that all student participants involved in this study were general education elementary students. It is not known to what extent this model of reading intervention would have similar

effects on students at different grade levels and those in special education. Additionally, there were only four parent participants with similar SES and educational backgrounds. Therefore, caution should be used when generalizing the findings of this study to other parent groups.

Second, the measurement of parent treatment integrity includes some flaws. For example, although Sandy's mother's integrity mean score of 83.9% is higher than Alice's mother's mean score of 79%, she actually implemented the intervention with poorer quality. Further examination of Sandy's mother's treatment checklist indicated that she routinely missed elements that were essential to the RR+EC intervention. For example, she repeatedly missed items such as *Had the student read the passage four times*, and *Implemented three sessions per week*. In contrast, items that were missed by Alice's mother such as *Recorded WCPM and EPM on the passage page*, and *Signed the Home-School Note*, were less central to the intervention. Therefore, although Alice's mother received a lower mean integrity score (79%) than Sandy's mother did, she actually implemented the intervention with better quality with regard to critical intervention components (e.g. repeated readings of passage). Future research should consider designing treatment integrity measurement in a way that better reflects the quality of treatment implementation as it relates to critical intervention components.

An additional issue regarding parent treatment integrity is that the relationship between parent treatment integrity and student performance was not examined. Moreover, no systematic teacher treatment integrity data for the school-based intervention were collected. Hence, it is not known if and to what extent parent and teacher treatment integrity is associated with student outcome.

Lastly, procedural fidelity for BEA was only measured for one student. Ideally, a sample of BEA procedural fidelity should have been obtained across all four student participants. Similarly, IOA data for BEA instructional and generalization passages were only collected for one student.

Despite the abovementioned limitations, this study includes some important findings. First, additional data are provided for parents' accurate and consistent oral reading fluency intervention implementation. Although parents were provided with consistent supports (e.g., phone calls) for intervention implementation, it is still encouraging that all parents implemented intervention with at least moderate integrity. Additionally, students responded favorably to parent intervention implementation even though they had previously failed to respond to intervention only at school. Future research is certainly needed to clarify the feasibility and impact of parent delivered academic interventions in the context of RtI, but this study at least provides initial support for the use of parents as intervention agents in RtI.

# APPENDIX A

# HUMAN SUBJECTS REVIEW COMMMITTEE APPROVAL

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

**HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE**
**NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **29113001**
PROJECT TITLE: **Promoting Home-School Collaboration: The Effects of Brief Experimetal Analysis Identified Reading Interventions Using Home-School Collaboration**
PROPOSED PROJECT DATES: **12/01/09 to 12/01/10**
PROJECT TYPE: **Dissertation or Thesis**
PRINCIPAL INVESTIGATORS: **Qi Zhou**
COLLEGE/DIVISION: **College of Education & Psychology**
DEPARTMENT: **Psychology**
FUNDING AGENCY: **N/A**
HSPRC COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **12/03/09 to 12/02/10**

Lawrence A. Hosman
Lawrence A. Hosman, Ph.D.
HSPRC Chair

12-4-09
Date

APPENDIX B

# Home-School Note

Date: _____

Passage number: _____

WCPM: _____

EPM: _____

_____ (student name) read _____ words in one minute.

The goal for today was to read more than _____ words correctly per minute.

Did he reach the goal and earn a prize? Please circle.

YES! Place a sticker below.

No, but he worked really hard, good job reading!

_____ Parent signature

_____ Teacher signature

APPENDIX C

# CURRICULUM-BASED MEASUREMENT PROCEDURES OF ORAL READING FLUENCY

A direct reading assessment involves administering a series of short oral reading probes. There are standard passages, but in general, use passages that come from the child's reading curriculum.

Information that you can obtain:

Correct Words per Minute (CWPM)
Incorrect Words per Minute (ICWPM)

General instructions:

1. Select level that corresponds to suggested placement. You will present 3 passages for each level assessed.

2. Place student copy in front of student. Have your own copy in front of you. Your copy should include numbered lines and comprehension questions. Do not allow student to see your copy.

3. Say:

   **"When I say 'begin,' start reading aloud at the top of this page. Read across the page [demonstrate by pointing]. Try to read each word. If you come to a word you don't know, I'll tell it to you. Be sure to do your best reading. Are there any questions?"** [pause here]

4. Say "**Begin**" and start your stopwatch. Follow along on your copy, marking incorrectly read or skipped words as outlined in the scoring procedures. When one minute. has elapsed, make a slash (/) after the last word read.

5. Allow the student to finish reading the entire probe. When finished, present the comprehension questions. Record the student's answers.

   *If a student reads very slowly or poorly, you may elect to stop the student after one minute due to potential frustration of the reader, time issues, etc.*

6. Count the total number of words correct and the number of errors for each passage. Score the percent correct on comprehension questions. Record scores and identify median correct, median incorrect (both per min), and median comprehension for each level assessed.

7. Based on student performance, utilizing criteria for placement, decide if other levels must be assessed and move up or down as appropriate. If student's

performance is within criteria for instructional placement, move up; if not, move down.

8. Continue to give probes until median score for at least one level is instructional AND the one above it is frustrational.

   Often you will not get this exact pattern. Some students will have a long series of instructional levels. According to Shapiro (1996), after 3 consecutive instructional levels, it is unnecessary to continue further. The student's level is the highest instructional level given.

   It is important to note that should a child not reach a satisfactory instructional level in ANY book of the basal reading series, an evaluation of pre-reading skills is needed.

Scoring:

As the student reads, mark the following errors:

1. Omissions: if the student leaves out the entire word (/)

   If the student omits the entire line, redirect him/her to the line as soon as possible and count ONLY ONE error (not as an error for each word missed). Subtract the number of words skipped in the line from the total number of words read in the passage. If you cannot redirect the student, count only as one error, not as an error for each word.

2. Substitutions/Mispronunciations: if the student says the wrong word (\)

   If the student mispronounces a proper noun (1st time only), count it as an error the 1st time and provide the correct pronunciation; accept as correct all subsequent presentations of the same noun.

   If the student mispronounces a word, give the child the correct word and instruct them to go to the next word if they hesitate.

   If the student deletes suffixes (e.g. -ed, -s) the deletion IS NOT counted as an error.

3. Additions/Insertions: if the student adds a word or words not in probe (/ between words)

4. Pauses/Hesitations: after 3 seconds (5 S?), supply word and count the pause as a error (P)

5. Transpositions: count as 1 error (~)

DO NOT COUNT THE FOLLOWING AS ERRORS:

- Repetitions
- Self-corrections: (circle if self-correct)

APPENDIX D

BRIEF EXPERIMENTAL ANALYSIS SCRIPT

**Materials Checklist:**

- ☐ Student Score Report Form
- ☐ Examiner Copy of the Instructional Passages
- ☐ Student Copy of the Instructional Passages
- ☐ Examiner Copy of the Generalization Passages
- ☐ Student Copy of the Generalization Passages
- ☐ Scripts for interventions.
- ☐ Stopwatch or Digital Timer
- ☐ Pen or Pencil
- ☐ Clipboard
- ☐ Tape Recorder (Optional)
- ☐ Tape (Optional)

**Script:**

- ☐ 1. Color-code the back of the student probes for each different condition except for the baseline probes.
- ☐ 2. Administer baseline condition at the beginning and end of the BEA.
- ☐ 3. Random order the interventions for each participant.
- ☐ 4. Administer the interventions according to the steps listed on the scripts.
- ☐ 5. When an intervention demonstrates a clearly visible difference relative to baseline and other instructional conditions, administer a baseline condition followed by the last effective treatment condition.
- ☐ 6. Administer a generalization probe after each intervention.
- ☐ 7. Record the number of words read correctly and errors made in one-minute on the Student Score Report Form.

APPENDIX E

REPEATED READINGS SCRIPT

Materials Checklist:

- ☐ Student Score Report Form
- ☐ Examiner Copy of the Instructional Passage
- ☐ Student Copy of the Instructional Passage
- ☐ Stopwatch
- ☐ Pen or Pencil
- ☐ Clipboard
- ☐ Audiocassette recorder
- ☐ Cassette tape

Script:

- ☐ 1. Place the Examiner Copy of the Instructional Passage on the clipboard in front of you but shielded so that the student cannot see what you record.
- ☐ 2. Present the Student Copy of the Instructional Passage to the student, saying: "WE'RE GOING TO PRACTICE READING A STORY SEVERAL TIMES TO HELP YOU GET BETTER AT READING. HERE IS THE STORY THAT I WOULD LIKE FOR YOU TO PRACTICE READING.READ THE STORY ALOUD. TRY TO READ EACH WORD. IF YOU COME TO A WORD YOU DON'T KNOW, I WILL TELL IT TO YOU. BE SURE TO DO YOUR BEST READING. DO YOU HAVE ANY QUESTIONS?"
- ☐ 3. Say "BEGIN!" and start the stopwatch when the student says the first word.
- ☐ 4. If the student hesitates on a word for more than three seconds, tell the student the word and place a line (/) through it. Place a line (/) through any word that is missed (i.e., skipped, misread, transposed). Provide the correct response immediately after the occurrence of an error.
- ☐ 5. At the end of one minute, place a closed bracket (]) after the last word read BUT allow the student to finish reading the entire passage.
- ☐ 6. Tell the student to stop reading at the end of the passage. Tell the student how many words he/she read correctly in one minute.
- ☐ 7. Repeat the above procedure three times.
- ☐ 8. Record the number of words read correctly and errors made (from the final reading) in one-minute on the Student Score Report Form.

APPENDIX F

REPEATED READINGS WITH ERROR CORRECTION SCRIPT

Materials Checklist:

- ☐ Student Score Report Form
- ☐ Examiner Copy of the Instructional Passage
- ☐ Student Copy of the Instructional Passage
- ☐ Stopwatch
- ☐ Pen or Pencil
- ☐ Clipboard
- ☐ Tape Recorder (Optional)
- ☐ Tape (Optional)

Script:

- ☐ 1. Place the Examiner Copy of the Instructional Passage on the clipboard in front of you but shielded so that the student cannot see what you record.
- ☐ 2. Present the Student Copy of the Instructional Passage to the student, saying: "WE'RE GOING TO PRACTICE READING A STORY SEVERAL TIMES TO HELP YOU GET BETTER AT READING. EACH TIME I WILL TELL YOU HOW FAST YOU HAVE READ THE STORY. HERE IS THE STORY THAT I WOULD LIKE FOR YOU TO PRACTICE READING. READ THE STORY ALOUD. TRY TO READ EACH WORD. IF YOU COME TO A WORD YOU DON'T KNOW, I WILL TELL IT TO YOU. THEN, YOU WILL REPEAT THE WORD THREE TIMES. BE SURE TO DO YOUR BEST READING. DO YOU HAVE ANY QUESTIONS?"
- ☐ 3. Say "BEGIN!" and start the stopwatch when the student says the first word.
- ☐ 4. If the student hesitates on a word for more than three seconds or reads the word incorrectly, say the word and have the student repeat the word three times.
- ☐ 5. When the student has finished, say, "YOU READ THE STORY IN ____ MINUTES/SECONDS. TRY READING IT AGAIN AND I WILL TELL YOU HOW QUICKLY YOU READ THE STORY."
- ☐ 6. Say "BEGIN!" and start the stopwatch when the student says the first word.
- ☐ 7. If the student hesitates on a word for more than three seconds or reads the word incorrectly, say the word and have the student repeat the word three times.
- ☐ 8. When the student has finished, say, "THIS TIME YOU READ THE STORY IN ____ MINUTES/SECONDS. TRY READING IT AGAIN AND I WILL TELL YOU HOW QUICKLY YOU READ THE STORY."
- ☐ 9. Say "BEGIN!" and start the stopwatch when the student says the first word.
- ☐ 10. If the student hesitates on a word for more than three seconds or reads the word incorrectly, say the word and have the student repeat the word three times.

☐ 11. When the student has finished, say, “THIS TIME YOU READ THE STORY IN ____ MINUTES/SECONDS. TRY READING IT ONE LAST TIME AND I WILL TELL YOU HOW MANY WORDS YOU READ IN ONE MINUTE.

☐ 12. Say “BEGIN!” and start the stopwatch when the student says the first word. Follow along on the Examiner Copy, marking errors with a slash (/).

☐ 13. If the student hesitates on a word for more than three seconds, say the word and mark it with a slash. If the student reads a word incorrectly, place a slash (/) through it.

☐ 14. At the end of one minute, place a closed bracket (]) after the last word read <u>BUT</u> allow the student to finish reading the entire passage. Tell the student to stop reading at the end of the passage. Tell the student how many words he/she read correctly in one minute.

☐ 15. Record the number of words read correctly and errors on the Student Score Report Form.

APPENDIX G

LISTENING PASSAGE PREVIEW + REPEATED READING SCRIPT

**Materials Checklist:**

- ☐ Student Score Report Form
- ☐ Examiner Copy of the Instructional Passage
- ☐ Student Copy of the Instructional Passage
- ☐ Stopwatch or Digital Timer
- ☐ Pen or Pencil
- ☐ Clipboard
- ☐ Audiocassette recorder
- ☐ Cassette tape

**Script:**

- ☐ 1. Place the Examiner Copy of the Instructional Passage on the clipboard in front of you, but shielded so that the student cannot see what you record.
- ☐ 2. Present the Student Copy of the Instructional Passage to the student, saying: "HERE IS A STORY THAT I WOULD LIKE FOR YOU TO READ. HOWEVER, I AM GOING TO READ THE STORY TO YOU FIRST. PLEASE FOLLOW ALONG WITH YOUR FINGER, READING THE WORDS TO YOURSELF AS I SAY THEM. START AT THE TOP OF THE PAGE (point to the top of the page) AND GO ACROSS THE PAGE (demonstrate by pointing)."
- ☐ 3. Read the entire passage at a comfortable reading rate (approximately 130 words per minute), making sure that the student is following along with his or her finger.
- ☐ 4. When you have finished reading the passage for the student, say: "NOW I WANT YOU TO READ THE STORY SEVERAL TIMES TO ME. WHEN I SAY START, BEGIN READING AT THE TOP OF THE PAGE. IF YOU COME TO A WORD THAT YOU DO NOT KNOW, I WILL TELL IT TO YOU. BE SURE TO DO YOUR BEST READING. DO YOU HAVE ANY QUESTIONS?"
- ☐ 5. Say "BEGIN!" and start the stopwatch when the student says the first word.
- ☐ 6. If the student hesitates on a word for more than 3 seconds, say the word and place a line (/) through it. Place a line (/) through any word that is missed (i.e., skipped, misread, and transposed).
- ☐ 7. At the end of one-minute, place a closed bracket (]) after the last word read and allow the student to finish reading the entire passage.

- ☐ 8. When the student completes the entire passage, count the number of words read correctly and errors made in one-minute.
- ☐ 9. Repeat the above procedure three times. For each administration, record the number of words read correctly and errors made in one-minute. After the final reading, tell the student the number of words he/she read correctly in one-minute for that reading.
- ☐ 10. Record the number of words read correctly and errors made (from the final reading) in one-minute on the Student Score Report Form.

APPENDIX H

LISTENING PASSAGE PREVIEW + REPEATED READING WITH ERROR

CORRECTION SCRIPT

**Materials Checklist:**

- ☐ Student Score Report Form
- ☐ Examiner Copy (4) of the Instructional Passage
- ☐ Student Copy of the Instructional Passage
- ☐ Stopwatch or Digital Timer
- ☐ Pen or Pencil
- ☐ Clipboard
- ☐ Tape Recorder (Optional)
- ☐ Tape (Optional)

**Script:**

- ☐ 1. Place the Examiner Copy of the Instructional Passage on the clipboard in front of you, but shielded so that the student cannot see what you record.
- ☐ 2. Present the Student Copy of the Instructional Passage to the student, saying: "HERE IS A STORY THAT I WOULD LIKE FOR YOU TO READ. HOWEVER, I AM GOING TO READ THE STORY TO YOU FIRST. PLEASE FOLLOW ALONG WITH YOUR FINGER, READING THE WORDS TO YOURSELF AS I SAY THEM. START AT THE TOP OF THE PAGE (point to the top of the page) AND GO ACROSS THE PAGE (demonstrate by pointing)."
- ☐ 3. Read the entire passage at a comfortable reading rate (approximately 130 words per minute), making sure that the student is following along with his or her finger.
- ☐ 4. When you have finished reading the passage for the student, say: "NOW I WANT YOU TO READ THE STORY SEVERAL TIMES FOR ME. WHEN I SAY START, BEGIN READING AT THE TOP OF THE PAGE. IF YOU COME TO A WORD THAT YOU DO NOT KNOW, I WILL TELL IT TO YOU. BE SURE TO DO YOUR BEST READING. DO YOU HAVE ANY QUESTIONS?"
- ☐ 5. Say "BEGIN!" and start the stopwatch when the student says the first word.

☐ 6. If the student hesitates on a word for more than 3 seconds, say the word, have the student repeat the word three times, and place a line (/) through it. Place a line (/) through any word that is missed (i.e., skipped, misread, and transposed).

☐ 7. At the end of one-minute, place a closed bracket (]) after the last word read and allow the student to finish reading the entire passage.

☐ 8. When the student completes the entire passage, count the number of words read correctly and errors made in one-minute.

☐ 9. Repeat the above procedure three times. For each administration, record the number of words read correctly and errors made in one-minute. After the final reading, tell the student the number of words he/she read correctly in one-minute for that reading.

☐ 10. Record the number of words read correctly and errors made (from the final reading) in one-minute on the Student Score Report Form.

APPENDIX I

REWARD SCRIPT

**Materials Checklist:**

- ☐ Student Score Report Form
- ☐ Examiner Copy of the Instructional Passage
- ☐ Student Copy of the Instructional Passage
- ☐ Stopwatch or Digital Timer
- ☐ Pen or Pencil
- ☐ Clipboard
- ☐ Audiocassette recorder
- ☐ Cassette tape

**Script:**

- ☐ 1. Place the Examiner Copy of the Instructional Passage on the clipboard in front of you, but shielded so that the student cannot see what you record.
- ☐ 2. Present the Student Copy of the Instructional Passage to the student, saying: "EARLIER YOU READ A STORY TO ME AND YOU READ __ WORDS CORRECT IN ONE MINUTE. NOW, I WANT YOU TO READ ANOTHER STORY. THIS TIME, IF YOU READ MORE WORDS CORRECTLY THAN __ YOU WILL GET TO PICK A PRIZE FROM THIS GOODIE BOX (show the student the goodie box and allow her or him to explore the items in the goodie box).
- ☐ 3. Say: "NOW I WANT YOU TO READ THIS STORY TO ME. WHEN I SAY START, BEGIN READING AT THE TOP OF THE PAGE. IF YOU COME TO A WORD THAT YOU DO NOT KNOW, I WILL TELL IT TO YOU. BE SURE TO DO YOUR BEST READING. DO YOU HAVE ANY QUESTIONS?"
- ☐ 4. Answer any questions that the student asks.
- ☐ 5. Say "BEGIN!" and start the stopwatch when the student says the first word.
- ☐ 6. While the student is reading the passage aloud, follow along on the Examiner Copy marking errors. Mark a [/] through each error. If the student hesitates on a word for more than 3 seconds, say the word and place a line (/) through it.

☐ 7. At the end of one-minute, place a closed bracket (]) after the last word read and allow the student to finish reading the entire passage.
☐ 8. When the student completes the entire passage, count the number of words read correctly and errors made in one-minute.
☐ 9. If the child's score is greater than the median from baseline or from the previous session, say, "GREAT WORK! YOU MET THE GOAL AND EARNED A REWARD!" allow the child to choose a reward from the goodie box.
☐ 10. If the child did not meet the goal, say "NICE TRY, BUT YOU DID NOT BEAT YOUR GOAL. YOU MAY HAVE ANOTHER CHANCE TO EARN A REWARD LATER.

## PPENDIX J

## BRIEF EXPERIMENTAL ANALYSIS PROCEDURES AND INTEGRITY

## CHECKLIST

1. Administer at least three baseline probes at the student's grade level.
2. Administer each component of the assessment to the student (i. e., Listening Passage Preview, Repeated Reading, Reward, Listening Passage Preview with Repeated Reading, Listening Passage Preview with Repeated Reading with Reward) in a randomized order.
3. After the administration of each component, administer the corresponding generalization passage.
4. Following administration of all components and combinations of components, administer one baseline probe.
5. Re-administer the most effective component of combination of components to replicate results.

APPENDIX K

PARENT TREATMENT INTEGRITY CHECKLIST

REPEATED READING

☐ 1. Conducted three intervention sessions per week
☐ 2. Sent Home-School Note to school after each session
__ Session one
__ Session Two
__ Session Three

☐ 3. Indicated the child's WCPM goal and the child's actual WCPM in the passage on the note
__ Session one
__ Session Two
__ Session Three

☐ 4. Indicated on the Home-School Note if the child met his goal or not
__ Session one
__ Session Two
__ Session Three

☐ 5. Timed the child for the first minute of reading of the fourth reading
__ Session one
__ Session Two
__ Session Three

☐ 6. Placed a bracket after the last word read at the end of the timed one minute
__ Session one
__ Session Two
__ Session Three

☐ 7. Marked errors made by the child during the timed one minute reading
__ Session one
__ Session Two
__ Session Three

☐ 8. Recorded WCPM and EPM on the passage page in the scoring booklet
__ Session one
__ Session Two
__ Session Three

☐ 9. Had the child read the passage four times
__ Session one
__ Session Two
__ Session Three

10. Parent signed the note
__ Session one
__ Session Two
__ Session Three

APPENDIX L

PARENT TREATMENT INTEGRITY CHECKLIST

REPEATED READING WITH ERROR CORRECTION

☐ 1. Conducted three intervention sessions per week
☐ 2. Sent Home-School Note to school after each session
__ Session One
__ Session Two
__ Session Three

☐ 3. Indicated the child's WCPM goal and the child's actual WCPM in the passage on the note
__ Session One
__ Session Two
__ Session Three

☐ 4. Indicated on the Home-School Note if the child met his goal or not
__ Session One
__ Session Two
__ Session Three

☐ 5. Timed the child for the first minute of reading of the fourth reading
__ Session One
__ Session Two
__ Session Three

☐ 6. Placed a bracket after the last word read at the end of the timed one minute
__ Session One

__ Session Two
__ Session Three

☐ 7. Marked errors made by the child during the timed one minute reading
__ Session One
__ Session Two
__ Session Three

☐ 8. Provided corrections for errors and had the child repeated the corrections
__ Session One
__ Session Two
__ Session Three

☐ 9. Recorded WCPM and EPM on the passage page
__ Session One
__ Session Two
__ Session Three

☐ 10. Had the child read the passage four times
__ Session One
__ Session Two
__ Session Three

☐ 11. Signed the note
__ Session One
__ Session Two
__ Session Three

APPENDIX M

PARENT TREATMENT INTEGRITY CHECKLIST LISTENING PASSAGE

PREVIEW WITH REPEATED READING

☐ 1. Conducted three intervention sessions per week
☐ 2. Sent Home-School Note to school after each session
__ Session One
__ Session Two
__ Session Three

☐ 3. Indicated the child's WCPM goal and the child's actual WCPM on the passage on the note
__ Session One
__ Session Two
__ Session Three

☐ 4. Indicated on the Home-School Note if the child met his goal or not
__ Session One
__ Session Two
__ Session Three

☐ 5. Read the passage once to the child
__ Session One
__ Session Two
__ Session Three

☐ 6. Timed the child for the first minute of reading of the fourth reading
__ Session One
__ Session Two
__ Session Three

☐ 7. Placed a bracket after the last word read at the end of the timed one minute
__ Session One
__ Session Two
__ Session Three

☐ 8. Marked errors made by the child during the timed one minute reading
__ Session One
__ Session Two
__ Session Three

☐ 9. Recorded WCPM and EPM on the passage page
__ Session One
__ Session Two
__ Session Three

☐ 10. Had the child read the passage three times
__ Session One
__ Session Two
__ Session Three

☐ 11. Signed the note
__ Session One
__ Session Two
__ Session Three

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